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AEROTHERMODYNAMIC DATA REPORT

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AIRLOADS INVESTIGATION OF AN 0.030-SCALE MODEL
OF THE SPACE SHUTTLE VEHICLE
140A/B LAUNCH CONFIGURATION (MODEL 47-OTS)
IN THE ARC 9- BY 7-FOOT UNITARY PLAN WIND TUNNEL
FOR MACH 1.55 AND 2.2 (IA14B)

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By

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for

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Johnson Space Center
National Aeronautics and Space Administration
Houston, Texas

WIND TUNNEL SPECIFICS:

Test Number:	ARC 97-716
NASA Series Number:	IA14B
Model Number:	47-OTS
Test Dates:	17 through 19 September 1973

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FOR MACH 1.55 AND 2.2 (IA14B)

VOLUME 1

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ABSTRACT

This report presents results of tests conducted on an 0.030-scale launch configuration model of the Space Shuttle Vehicle 140A/B in the NASA/ ARC 9- by 7-Foot Unitary Plan Wind Tunnel. Aerodynamic loads data were obtained at Mach numbers of 1.55 and 2.2.

Surface pressure distributions were obtained simultaneously with six-component stability and control force data on the complete launch configuration. The configuration consisted of the orbiter, an external tank, two solid rocket boosters, and associated intercomponent attach hardware. Angles of attack and sideslip from -8 degrees to +8 degrees were investigated. The tests, designated IA14B, were conducted from 17 September 1973 through 19 September 1973.

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PLOTTED COEFFICIENTS SCHEDULE:

A) CP versus X/LB

B) CP versus X/LT

C) CP versus X/LS

D) CP versus X/CW

E) CP versus X/CV

F) CP versus BETAO

G) CP versus BETAT

The plotted pressure data, presented as a function of angle of side-slip, angle of attack, and geometric parameters, are representative of the tabulated data presented in Volume 2. A summary of the pressure data plotted is given below.

DATASET PLOTTED	COMPONENT	MACH	PHI SCHED.	BETA SCHED.	ALPHA SCHED.	GEOMETRIC PARAMETER SCHEDULES
RB3B12	ORB. FUSELAGE	2.2	(A)	(A)	(A)	
RB3B13	ORB. FUSELAGE	1.55	(A)	(A)	(A)	
RB3T12	EXTERNAL TANK	2.2	(B)	(A)	(A)	
RB3T13	EXTERNAL TANK	1.55	(B)	(A)	(A)	
RB3S12	SRM BOOSTER	2.2	(C)	(A)	(A)	
RB3S13	SRM BOOSTER	1.55	(C)	(A)	(A)	
RB3U12	UPPER WING SURF.	2.2	-	(A)	(A)	Y/BW (A)
RB3L12	LOWER WING SURF.					
RB3U13	UPPER WING SURF.	1.55	-	(A)	(A)	Y/BW (A)
RB3L13	LOWER WING SURF.					
RB3V12	VERT. TAIL LT. SURF.	2.2	-	(A)	(A)	Z/BV (A)
RB3R12	VERT. TAIL RT. SURF.					
RB3V13	VERT. TAIL LT. SURF.	1.55	-	(A)	(A)	Z/BV (A)
RB3R13	VERT. TAIL RT. SURF.					
RB3C12	ORBITER BASE	2.2	(D)	(A)	(A)	TAP NO. (A)
RB3C13	ORBITER BASE	1.55	(D)	(A)	(A)	TAP NO. (A).
RB3E12	OMS NOZZLE	2.2	(E)	(A)	(A)	X/LNM (A)
RB3E13	OMS NOZZLE	1.55	(E)	(A)	(A)	X/LNM (A)
RB3X12	SRM BASE	2.2	(C)	(B)	(B)	X/LS (A)
RB3X14	SRM BASE	2.2	(C)	(B)	(B)	X/LS (A)
RB2Y12	E. T. BASE	2.2	(D)	(A)	(A)	TAP NO. (B)
RB3Y13	E. T. BASE	1.55	(D)	(A)	(A)	TAP NO. (B)
RB3112	ORB. ATTACH POINTS	2.2	-	(A)	(A)	SEE
RB3113	ORB. ATTACH POINTS	1.55	-	(A)	(A)	PLOTS

INDEX OF DATA FIGURES (PRESSURE) - CONCLUDED

DATASET PLOTTED	COMPONENT	MACH	PHI SCHED.	BETA SCHED.	ALPHA SCHED.	GEOMETRIC PARAMETER SCHEDULES
RB3212	E. T. ATTACH POINTS	2.2	SEE	(B)	(B)	SEE
RB3214	E. T. ATTACH POINTS	2.2	PLOTS	(B)	(B)	PLOTS
RB3312	E. T. BASE RAKE	2.2	(F)	(B)	(B)	TAP NO. (C)
RB3314	E. T. BASE RAKE	2.2	(F)	(B)	(B)	TAP NO. (C)

PARAMETER SCHEDULES

ALPHA

  SCHEDULES (A)   -8, -4, 0, 8
                (B)   -8, -4, 0

BETA

                (A)   -8, -4, 0, 8
                (B)   -8, -4, 0, 4, 8

PHI

                (A)   0, 20, 40, 55, 70, 90, 120, 135, 150, 165, 180
                (B)   0, 30, 60, 90, 120, 135, 150, 165, 180, 270
                (C)   0, 45, 90, 135, 180, 225, 270, 315
                (D)   0
                (E)   135, 180, 225
                (F)   180

Y/BW

                (A)   .299, .364, .427, .534, .673, .780, .887

Z/BV

                (A)   .158, .316, .600, .840, .925

X/LNM

                (A)   .2, .4

X/LS

                (A)   .948, .979, .993

TAP NO.

                (A)   1, 2, 3, 4, 5
                (B)   501, 502, 801, 802, 803, 804
                (C)   790, 789, 788, 787

INTRODUCTION

The 0.030-Scale Aero Loads Space Shuttle model was tested in the ARC Unitary Plan Wind Tunnel as follows:

IA14A	4 thru 13 Sept. 1973
IA14B	17 thru 19 Sept. 1973
OA22A	13 thru 14 Sept. 1973
OA22B	19 thru 20 Sept. 1973

The testing was conducted in the 11-foot and the 9- by 7-foot tunnels of the ARC Unitary Plan Wind Tunnels. The IA14A/B tests were for the launch configurations at Mach numbers from 0.6 thru 2.2. The OA22A/B tests were for the orbiter alone configurations at Mach numbers from 0.6 thru 2.2. The effects of control surface deflections were also investigated in tests OA22A/B.

This report for test IA14B consists of two volumes. The first volume contains all force data and the plotted pressure data. The second volume contains the tabulated pressure data.

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	(c) OMS nozzle (E)	109-136
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	(l) SRM nozzle (X)	597-608
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	(o) External tank attach points (2)	701-730
	(p) External tank base rake (3)	731-738

NOMENCLATURE
General

SYMBOL	PLOT SYMBOL	DEFINITION
a		speed of sound; m/sec, ft/sec
C_p	CP	pressure coefficient; $(p_1 - p_\infty)/q$
M	MACH	Mach number; V/a
p		pressure; N/m^2, psf
q	Q(NSM) Q(PSF)	dynamic pressure; $1/2\rho V^2$, N/m^2, psf
RN/L	RN/L	unit Reynolds number; per m, per ft
V		velocity; m/sec, ft/sec
α	ALPHA	angle of attack, degrees
β	BETA	angle of sideslip, degrees
ψ	PSI	angle of yaw, degrees
ϕ	PHI	angle of roll, degrees
ρ		mass density; kg/m^3, $slugs/ft^3$

Reference & C.G. Definitions

A_b		base area; m^2, ft^2
b	BREF	reference span; m, ft
c.g.		center of gravity
$\bar{c}$		reference length or wing mean aerodynamic chord; m, ft
S	SREF	wing area or reference area; m^2, ft^2
	MRP	moment reference point
	XMRP	moment reference point on X axis
	YMRP	moment reference point on Y axis
	ZMRP	moment reference point on Z axis

SUBSCRIPTS

b	base
1	local
s	static conditions
t	total conditions
∞	free stream

Body-Axis System

SYMBOL	PLOT SYMBOL	DEFINITION
C_N	CN	normal-force coefficient; $\dfrac{\text{normal force}}{qS}$
C_A	CA	axial-force coefficient; $\dfrac{\text{axial force}}{qS}$
C_Y	CY	side-force coefficient; $\dfrac{\text{side force}}{qS}$
C_{A_b}	CAB	base-force coefficient; $\dfrac{\text{base force}}{qS}$ $-A_b(p_b - p_\infty)/qS$
C_{A_f}	CAF	forebody axial force coefficient, $C_A - C_{A_b}$
C_m	CLM	pitching-moment coefficient; $\dfrac{\text{pitching moment}}{qSl_{REF}}$
C_n	CYN	yawing-moment coefficient; $\dfrac{\text{yawing moment}}{qSb}$
C_l	CBL	rolling-moment coefficient; $\dfrac{\text{rolling moment}}{qSb}$

Stability-Axis System

SYMBOL	PLOT SYMBOL	DEFINITION
C_L	CL	lift coefficient; $\dfrac{\text{lift}}{qS}$
C_D	CD	drag coefficient; $\dfrac{\text{drag}}{qS}$
C_{D_b}	CDB	base-drag coefficient; $\dfrac{\text{base drag}}{qS}$
C_{D_f}	CDF	forebody drag coefficient; $C_D - C_{D_b}$
C_Y	CY	side-force coefficient; $\dfrac{\text{side force}}{qS}$
C_m	CLM	pitching-moment coefficient; $\dfrac{\text{pitching moment}}{qSl_{REF}}$
C_n	CLN	yawing-moment coefficient; $\dfrac{\text{yawing moment}}{qSb}$
C_l	CSL	rolling-moment coefficient; $\dfrac{\text{rolling moment}}{qSb}$
L/D	L/D	lift-to-drag ratio; C_L/C_D

NOMENCLATURE (Continued)
Additions to Standard List

Symbol	Plot Symbol	Definition
$A_{(\ )}$		model base area, subscript is base orifice number and identifies location
C_{A_b}	CAB	model base axial-force coefficient
$C_{P_{(\ )}}$		model static pressure coefficient, subscript is orifice number, $[P_{(\ )} - P_\infty]/q$
C_{AU}	CA	axial-force coefficient, unadjusted
C_{AF}	CAF	forebody axial-force coefficient, C_{AU} adjusted for base terms
ET		external tank
IV	- ----- -	integrated vehicle, consists of orbiter, external tank, and two solid rocket motors
ℓ_{REF}	LREF	reference length, inches
MRC		moment reference center
OMS		orbital maneuvering system
δ_e	ELEVON	elevon, surface deflecton angle, positive deflection trailing edge down, degrees
δ_f	BDFLAP	orbiter body flap deflection angle, positive deflection angle is trailing edge down, degrees
δ_R	RUDDER	rudder, surface deflection angle, positive deflection trailing edge to the left degrees
δ_{SB}	SPDBRK	speed brake deflection angle, split rudder deflection angle, left split rudder trailing edge left and right split rudder trailing edge right, $\delta_{SB} = (\delta_{RL} + \delta_{RR})/2$, positive deflection, degrees
i_o	ORBINC	incidence angle between the orbiter and external tank, $i_o = \alpha_o - \alpha_T$, degrees
β_T	BETAT	angle of sideslip of external tank

α_T	ALPHAT	angle of attack of external tank
ℓ_B	LB	length of orbiter body, in
ℓ_T	LT	length of external tank, in
ℓ_S	LS	length of SRM booster, in
ℓ_{NM}	LNM	length of OMS nozzle, positive direction forward of exit plane, in
ℓ_{NP}	LNP	length of MPS nozzle, positive direction forward of exit plane, in
$b/2$	BW	wing semi-span, in
b_v	BV	vertical tail span, in
x	X	distance from component nose, in
y	Y	lateral distance from centerline, in
z	Z	vertical distance measured from W.L. 500 (vertical tail reference root chord), in
c_w	CW	local wing chord, in
c_v	CV	local vertical tail chord, in
x/ℓ_B	X/LB	longitudinal position/orbiter body length
x/ℓ_T	X/LT	longitudinal position/external tank length
x/ℓ_S	X/L	longitudinal position/booster length
x/ℓ_{NM}	X/LNM	longitudinal position/OMS nozzle length
x/ℓ_{NP}	X/LNP	longitudinal position/MPS nozzle length
x/c_w	X/CW	local chordwise position/local wing chord length

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NOMENCLATURE (Concluded)

x/c_v	X/CV	local chordwise position/local vertical tail chord length
η	Y/BW	local spanwise position/wing semi-span
η_v	Z/BV	local spanwise position/vertical tail span
x_{CP}/ℓ	XCP/L	center of pressure distance from MRC, expressed as a fraction of body length
β_0	BETAO	angle of sideslip of orbiter
α_0	ALPHAO	angle of attack of orbiter

CONFIGURATIONS INVESTIGATED

The 0.030-scale Aero Loads Model, 47-OTS, was configured after the
Shuttle Vehicle MCR 0200 Baseline R1, as defined in drawing number VL72-
000088B. The orbiter was a combination of the VL70-000140A orbiter and
a VL70-000140B wing and midbody, from which the 140A/B designation was
derived. The basic launch configuration, designated O_1 T_{12} S_{12} N_{25},
consisted of the orbiter, an external tank with simulated fuel and vent
lines, and two solid rocket boosters.

Two launch configurations were tested. Both were mounted on a dual
balance and sting arrangement illustrated in figure 2c. One was the
basic configuration mounted on a dual balance and sting arrangement il-
lustrated in figure 2a. The second configuration contained simulated
attach hardware designated AT_{11}, which was attached to the orbiter but
not to the external tank, illustrated in figures 2b and 2d. The SRB-to-ET
attach hardware was simulated at the forward attach location but not at
the aft attach location. Model and component general arrangements are
shown in figures 2d through 2n.

Component	Description
O_1	140A/B orbiter, less the main propulsion system nozzles
T_{12}	324-inch diameter external tank with ogive nose and external fuel and vent lines
S_{12}	143.3-inch diameter solid rocket boosters
N_{25}	Nozzles for S_{12} boosters
AT_{11}	Orbiter-to-ET attach hardware, fixed to orbiter only

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LV O_1 T_{12} S_{12} N_{25}

LVAP O_1 T_{12} S_{12} N_{25} AT_{11}

The orbiter, O_1, consisted of the following compoents:

B_{26} C_9 F_8 M_7 N_{28} V_8 R_5 W_{116} E_{26}.

B_{26}	Double delta wing fuselage, 140A/B
C_9	Canopy, 140A
F_8	Body flap, 140A
M_7	OMS pods, 140A
N_{28}	OMS nozzles, 140A
V_8	Vertical tail, 140A
R_5	Rudder, 140A
W_{116}	Double delta wing, 140B
E_{26}	Elevons, 140B

Parametric investigations were limited to angles of attack and side-slip with all orbiter control surfaces at 0° deflection.

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INSTRUMENTATION DESCRIPTION

The left side of the orbiter and the external tank, and the left hand SRB were extensively instrumented with pressure orifices for measurement of surface static pressure distributions. Additionally, there were clusters of orifices around inter-component attach structure locations on the right hand side of the orbiter and external tank. The orbiter contained 471 operational orifices, of which 83 were clustered around attach structure. The external tank contained 270 operational orifices, of which 127 were clustered around attach structure. The SRB contained 124 operational orifices. A two-tube total pressure rake was installed in the opening between the orbiter and external tank. Tables and sketches defining orifice locations are included in this report. All model pressures were measured by model mounted Scanivalve, Inc., S-type scanivalve modules - twelve in the orbiter, seven in the external tank, and five in the SRB.

Force instrumentation consisted of a six-component internal force balance in both the orbiter and external tank for the LV and LVAP configurations.

TEST FACILITY DESCRIPTION

The tests were conducted in the Ames 9- by 7-Foot Supersonic Wind Tunnel. This tunnel is a variable density, continuous flow type with an adjustable nozzle to permit supersonic testing over a Mach number range continuously variable from 1.5 to 2.5. The nozzle is of the asymmetric, sliding-block type in which the variation of the test section Mach number is achieved by translating, in the streamwise direction, the fixed-contour block that forms the floor of the nozzle.

DATA REDUCTION

Data were reduced to coefficient form about body axes using the following reference constants:

S_{REF} = 2.421 ft^2 reference area for force and moment coefficients

ℓ_{REF} = 38.709 in   reference length for moment coefficients

A_1 = 0.07670 ft^2 Orbiter sting cavity

A_2 = 0.21340 ft^2 Orbiter heat shield base..

A_3 = 0.08560 ft^2 Orbiter OMS base (2)

A_4 = (see table below) Orbiter speed brake base

A_{501} = 0.07266 ft^2 Tank sting cavity

A_{502} = 0.44264 ft^2 Tank base

A_{801} = 0.19600 ft^2 SRM nozzle base (2)

A_{802} = 0.16590 ft^2 SRM skirt base (2)

δ_{SB} =	deg	A_4 =	ft^2
	0		0
	14.92		0.02327
	24.92		0.03866
	34.92		0.05370
	54.92		0.08252
	84.92		0.12083

X_{MRP} = 0   in

Y_{MRP} = 0   in

Z_{MRP} = 9.999 in

The incidence angle between the orbiter and the external tank is equal to zero for angle of attack and ngle of sideslip. Therefore, the angle of attack, ALPHA, used in the force plots is equal to ALPHAO. Also the angle of sideslip, BETA, used in the force plots is equal to BETAO.

The force and moment data recorded by the orbiter and external tank balances for configurations LV and LVAP are identified as RB3ØXX and RB3IXX datasets, respectively.

The pressure data were recorded for each component. The fourth character in each dataset identifier (i.e., RB3BXX, B for fuselage) represents the individual component. The following list indicates the symbol for each component.

SYMBOL	COMPONENT
B	Orbiter fuselage
C	Orbiter base
E	OMS nozzle
F	Body flap
M	OMS pod outside
L	Lower wing surface
U	Upper wing surface
R	Right vertical tail surface
V	Left vertical tail surface
S	SRM booster
T	External tank

SYMBOL	COMPONENT
X	SRM nozzle
Y	External tank base & SRM booster base
1	Orbiter attach points
2	External tank attach points
3	External tank base rake

REFERENCES

1. Orbiter - Lines and Configuration Control Drawings

2. VL70-000140A, Orbiter Configuration Control Drawing MCR 0200 Baseline

3. VL70-000143A, Lines Control, Vehicle 4 Forward Body - Cabin - Canopy MCR 0200 Baseline

4. VL70-000200, Lines Control, Midbody - Wing - Boot Fairing MCR 200 R3 dated 7-2-73

5. VL70-000145, Lines Control - Aft Body - OMS/RCS Pods, MCR 0200 - R1 Baseline

6. VL70-000146A, Lines Control (Vehicle 4) Vertical Tail MCR 0200 Baseline

7. External Oxygen Hydrogen Tank (EOHT) - Lines and Configuration Control Drawings

8. VL78-000041B, External Tank - Configuration Control MCR 0200 Baseline R2

9. VL78-000024A, Structural Assy - External Tank MCR 0200 R2

10. VL78-000031A, Thermal Protection - External Tank, MCR 0200 Baseline

11. Solid Rocket Boosters (SRB) - Lines and Configuration Control Drawings

12. VL77-000036A, SRB Configuration Control MCR 0200 R1

13. VL77-000041, SRB Booster Assy, MCR 0200 R1

14. Integrated Vehicle - Lines and Configuration Control Drawings

15. VL72-000088A, Shuttle Configuration MCR 0200 Baseline R1

16. VL72-000089, SRM-ET-Orbiter Int⸱ .... Disconnects MCR 0200 Baseline

17. VL72-000075, External Tank to SRB Attach Interface MCR 0074 Baseline

18. Aero Loads Model 47-OTS - Model Fabrication, Assembly and Installation Drawings

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19. SS-A00119, Orbiter Assy - .030 Scale Pressure/Loads Model (140A/B Lines)

20. SS-A00120, Assy & Details - EOHT - .030 Scale Pressure/Loads Model (140A Lines)

21. SS-A00121, Orbiter/EOHT Attachments .030 Scale Pressure/Loads Model (140A Lines)

22. SS-A00122, Assy & Details - SRM - .030 Scale Pressure/Loads Model (140A Lines)

23. SS-A00123, Assy & Details - Forebody - .030 Scale Pressure/Loads Model (140A Lines)

24. SS-A00124, Assy & Details - Aft Fuselage - .030 Scale Pressure/ Loads Model (140A Lines)

25. SS-A00125, Assy & Details - Wing Splice Plate & Cuff - .030 Scale Pressure/Loads Model (140A Lines)

26. SS-A00126, Assy & Details - Vertical Stabilizer - .030 Scale Pressure/Loads Model (140A Lines)

27. SS-A00127, Ames 11-ft x 11-ft Wind Tunnel Installation - .030 Scale Pressure/Loads Model (140A/B Lines)

28. SS-A00128, Ames 9-ft x 7-ft Wind Tunnel Installation - .030 Scale Pressure/Loads Model (140A/B Lines)

29. SS-A00130, Lines Control - Profile VL70-000140A - .030 Scale Pressure/Loads Model (140A/B Lines)

30. W-1104S, Sting - Ames MK II 4" Balance (Male End), Ames MK XX 2.5" Balance

31. W-1105S, Sting - Ames MK II 4" Balance (Male End), RI MK I 2.75" Balance

32. W-1106A, Adapter - Ames MK II, 4" Balance (Male & Female)

33. W-1107A, 13.5° Bent Sting Adapter Ames MK II 4" Balance (Male & Female)

34. (DMS-DR-2084), "Airloads Investigation of an 0.030-Scale Model of the Space Shuttle Vehicle 140A/B Launch Configuration (Model 47-OTS) in the ARC 11-foot Unitary Plan Wind Tunnel for Mach Range 0.6 to 1.4 (IA14A)"

35. (DMS-DR-2130), "Airloads Investigation of an 0.030-Scale Model of the Space Shuttle Vehicle 140A/B Orbiter Configuration (Model 47-0) in the ARC 11-foot Unitary Plan Wind Tunnel for Mach 0.6 and 0.9 (OA22A)"

36. (DMS-DR-2131), "Airloads Investigation of an 0.030-Scale Model of the Space Shuttle Vehicle 140A/B Orbiter Configuration (Model 47-0) in the ARC 9- by 7-foot Unitary Plan Wind Tunnel for Mach 1.55 and 2.2 (OA22B)"

TABLE I.

TEST : IA-14B			DATE : 9-19-73

		TEST CONDITIONS	

MACH NUMBER	REYNOLDS NUMBER (per unit length)	DYNAMIC PRESSURE (pounds/sq. ft)	STAGNATION TEMPERATURE (degrees Fahrenheit)
1.55	2.0×10^6	430	120
2.2	2.75×10^6	580	120

BALANCE UTILIZED: 2.5-in MK XX (ORB.), 2.75-in MK I (ET)

	CAPACITY: MK XX MKI	ACCURACY: MK XX MKI	COEFFICIENT TOLERANCE:
NF	6000 7500	0.2% 0.2%	
SF	3000 3750	0.2% 0.2%	
AF	600 700	0.2% 0.2%	
PM			
RM	4000 4000	0.2% 0.2%	
YM			

COMMENTS:

TABLE II

TEST: IA14 B (FCPIC) **DATA SET/RUN NUMBER COLLATION SUMMARY** **DATE: 19 Sept 1973**

TEST RUN NUMBERS

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	M	δ_c	δ_R	δ_{sb}	NO. OF RUNS	-8	-4	0	4	8
									ALPHA (I OR ALTERNATE INDEPENDENT VARIABLE)
RB3I 11	Ø1+TI2+S12+N25+ATII		B	1.55	0	0	0		205	206	207	208	209
12	+ATII		→	2.2	→	→	→		200	201	202	203	204
13				1.55					212	213	214	215	216
14	→		→	2.2	→	→	→		217	218	219	220	221
RB3Ø11	Ø1+TI2+S12+N25+ATII		B	1.55	0	0	0		205	206	207	208	209
12	+ATII		→	2.2	→	→	→		200	201	202	203	204
13				1.55					212	213	214	215	216
14	→		→	2.2	→	→	→		217	218	219	220	221

β B): $-8, -4, 0, 4, 8$

CN CLM CA EAF CY CYN CBL COEFFICENTS

α OR β SCHEDULES

IDVAR (1) ALPHA   IDVAR (2) BETA   NDV

TABLE II – CONCLUDED

TEST: IA14B (PRESSURE)   **DATA SET/RUN NUMBER COLLATION SUMMARY**   **DATE: 19 Sept. 1973**

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	M	δ_e	δ_R	δ_{SB}	NO. OF RUNS	$\alpha = -8$	-4	0	4	8
RB3(1) 11	Ø1+T12+S12+M5+AT11		B	1.55	0	0	0		205	206	207	208	209
12	+AT11		→	2.2	→	→	→		200	201	202	203	204
13	→		→	1.55	→	→	→		212	213	214	215	216
14	→		↓	2.2	→	→	→		217	218	219	220	221
RB3(2) 12	Ø1+T12+S12+M5+AT11		B	2.2	0	0	0		200	201	202		
14	→		B	→	→	→	→		217	218	219		

α OR β SCHEDULES: B B): $-8,-4,0,4,8$ COEFFICENTS   COMP (1) = B,C,E,F,L,M,R,S,T,U,V,Y,1   COMP (2) = X,

IDVAR (1)   IDVAR (2)   NDV

TABLE III . - MODEL DIMENSIONAL DATA

MODEL COMPONENT: ATTACH STRUCTURE - AT_{11}

GENERAL DESCRIPTION: Attach structure, same as AT_{10} except the forward attach struts are rotated to the vertical, and the structure extends from the orbiter but is not attached to the tank.

MODEL SCALE: 0.030

DIMENSIONS:	FULL SCALE	MODEL SCALE
FORWARD ATTACH		
Orbiter to Tank		
Location - In.		
X_O	382.000	11.460
X_T	1133.000	33.990
Clearance, tank to strut - In.	16.667	0.500
DRAG LINK ATTACH		
Orbiter to Tank		
Clearance, tank to strut - In.	8.333	0.250
AFT ATTACH		
Orbiter to Tank		
Clearance, Tank to strut - In.	8.333	0.250
Crossover Rod		
Clearance, tank to strut - In.	8.333	0.250

TABLE III. - Continued.

MODEL COMPONENT: <u>BODY - B_{26}</u>

GENERAL DESCRIPTION: <u>Orbiter Fuselage Configuration 140 A/B</u>

NOTE: <u>B_{26} identical to B_{24} except underside of fuselage refaired to</u>

<u>accept W_{116}.</u>

<u>Model Scale = .030</u>

DRAWING NUMBER: VL70-000193
<u>VL70-000140A</u>

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Length (Body Fwd Sta X_o = 238) - in.	1293.3	38.799
Max. Width (at X_o = 1520) - in.	262.0	7.860
Max. Depth (at X_o = 1464) - in.	250.0	7.500
Fineness Ratio	0.26357	0.26357
Area - ft^2		
Max. Cross-Sectional	340.88462	0.30679
Planform		
Wetted		
Base		

TABLE III. - Continued.

MODEL COMPONENT: CANOPY - C_9

GENERAL DESCRIPTION: Configuration 3A

Model Scale = .030

DRAWING NUMBER

VL70-000140A
VL70-000143A

DIMENSION:

	FULL SCALE	MODEL SCALE
Length (X_0=434.643 to 670)	235.357	7.06071
Max Width (@ X_0=513.127)	152.412	4.57236
Max Depth (@ X_0=485.0)	25.000	0.75000
Fineness Ratio		
Area		
Max Cross-Sectional		
Planform		
Wetted		
Base		

TABLE III. - Continued.

MODEL COMPONENT: ELEVON - E_{26}

GENERAL DESCRIPTION: Configuration 4

    NOTE: VL70-000400 data for (1) of (2) sides. Identical to E_{25} except

       airfoil thickness

   Model Scale =   .030

DRAWING NUMBER: VL70-000 200
       VL70-000140 B

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area	223.5814	0.20122
Span (equivalent)	368.34	11.05020
Inb'd equivalent chord	119.623	3.58869
Outb'd equivalent chord	55.1922	1.65577
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	0.2096	0.2096
At Outb'd equiv. chord	0.4004	0.4004
Sweep Back Angles, degrees		
Leading Edge	0.00	0.00
Tailing Edge	-10.056	-10.056
Hingeline	0.00	0.00
Area Moment (Normal to hinge line)	851.1502	0.76604

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TABLE III. - Continued.

MODEL COMPONENT: Body Flap - F_8

GENERAL DESCRIPTION: Configuration 4

Model Scale - .030
DRAWING NUMBER   VL70-000140B, VL70-000200

DIMENSION:	FULL SCALE	MODEL SCALE
Length in.	84.7	2.541
Max Width in.	262.308	7.86924
Max Depth in.	23.000	0.60000
Fineness Ratio		
Area - ft²		
Max Cross-Sectional		
Planform	158.85350	0.14297
Wetted		
Base	41.89642	0.03771

TABLE III. - Continued.

MODEL COMPONENT: OMS POD - M_7

GENERAL DESCRIPTION: Configuration 3A

Model Scale = .030

DRAWING NUMBER   VL70-000140A
                  VL70-000145

DIMENSION:	FULL SCALE	MODEL SCALE
Length (OMS Fwd Sta X_o=1233.0) - IN.	327.000	9.810
Max Width (@ X_o=1450.0) - IN.	94.5	2.8350
Max Depth (@ X_o=1493.0) - IN.	109.000	3.270
Fineness Ratio		
Area		
Max Cross-Sectional		
Planform		
Wetted		
Base		

TABLE III. - Continued.

MODEL COMPONENT: BSRM NOZZLES - N_{25}

GENERAL DESCRIPTION: Configuration 3A BSRM Nozzles

Model Scale = .030

DRAWING NO. VL72-000083A
VL77-000036A

DIMENSIONS	FULL-SCALE	MODEL SCALE
MACH NO.		
DIAMETER DEX ~ IN (One Nozzle)	141.3	4.2390
DIAMETER DT ~ IN		
DIAMETER DIN ~ IN		
ON ~ DEGREES		
AREA - FT^2 (One Nozzle)		
MAX CROSS-SECTIONAL	108.89595	0.09801

GIMBAL ORIGIN	X_0	Y_0	Z_0
LEFT NOZZLE ~ IN. F.S.	1825.3	-243	400
RIGHT NOZZLE ~ IN. FS	1825.3	+243	400

NULL POSITION - DEG.	PITCH	YAW
LEFT NOZZLE	+8	+8
RIGHT NOZZLE	+8	+8

TABLE III. - Continued.

MODEL COMPONENT: NOZZLES - N$_{28}$

GENERAL DESCRIPTION: Configuration 3A OMS Nozzle

Model Scale = .030

DRAWING NO.   VL70-000140A

DIMENSIONS	FULL-SCALE	MODEL SCALE
MACH NO.		
DIAMETER DEX ~ IN (One nozzle)		
DIAMETER DT ~ IN		
DIAMETER DIN ~ IN		
ON ~ DEGREES		
AREA - Ft^2 (one nozzle)		
MAX CROSS-SECTIONAL		

GIMBAL ORIGIN	X_0	Y_0	Z_0
LEFT NOZZLE ~ IN.	1518.0	-88.0	492.0
RIGHT NOZZLE ~ IN.	1518.0	+88.0	492.0

NULL POSITION	PITCH	YAW
LEFT NOZZLE (Null Pitch 15°49'; Yaw 12°17' OUTB'D)	±8°	13°17' OU.B'D 2°30' INB'D
RIGHT NOZZLE (Null Pitch 15°49'; Yaw 12°17' OUTB'D)	±8°	13°17' O'TB'D 2°17' INB'D

TABLE III. - Continued.

MODEL COMPONENT: <u>RUDDER - R$_5$</u>

GENERAL DESCRIPTION: <u>2A, 3 and 3A Configuration per Rockwell Lines</u>

<u>VL70-000095</u>

Model Scale = .030

DRAWING NUMBER: <u>VL70-000095</u>

DIMENSIONS:	FULL-SCALE	MODEL SCALE
Area - FT^2	106.38	0.09574
Span (equivalent) - IN.	201.0	6.0300
Inb'd equivalent chord	91.585	2.74755
Outb'd equivalent chord	50.833	1.52499
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	0.400	0.400
At Outb'd equiv. chord	0.400	0.400
Sweep Back Angles, degrees		
Leading Edge	34.83	34.83
Tailing Edge	26.25	26.25
Hingeline	34.83	34.83
Area Moment (Normal to hinge line)- FT^3 Product of Area and Mean Chord	526.13	0.01420

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TABLE III. - Continued.

MODEL COMPONENT: ___BOOSTER SOLID ROCKET MOTOR - S$_{12}$___

GENERAL DESCRIPTION: ___Configuration 3A, Data for (1) of (2) sides,___

___per Rockwell Lines VL77-000036A___

___Model Scale = .030___

DRAWING NUMBER	VL72-000088A VL77-000036A	
DIMENSION:	FULL SCALE	MODEL SCALE
Length (Includes Nozzle) - IN.	1741.0	52.2300
Max Width (Tank Dia) - IN.	142.3	4.2690 .
Max Depth (Aft Shroud) - IN.	192.0	5.7600
Fineness Ratio	9.06771	9.06771
Area - FT^2		
Max Cross-Sectional	201.06193	0.18096
Planform		
Wetted		
Base		
WP of BSRM Centerline (Z_T) - IN.	400	12.000
FS of BSRM Nose (X_T) - IN.	200	6.000

TABLE III. - Continued.

MODEL COMPONENT: EXTERNAL TANK - T_{12}

GENERAL DESCRIPTION: External Oxygen Hydrogen Tank

NOTE: Identical to T11 with external fuel lines added

Model Scale = .030

DRAWING NUMBER
VL78-000031A
VL78-000041A

DIMENSION:	FULL SCALE	MODEL SCALE
Length - IN. (Nose @ X_T = 309)	1865	55.95
Max Width (Dia) - IN.	324	9.72
Max Depth		
Fineness Ratio	5.75617	5.75617
Area - FT^2		
Max Cross-Sectional	572.555	.5153
Planform		
Wetted		
Base		
WP of Tank Centerline ($\dot{X}_T$) - IN.	400.0	

TABLE III. - Continued.

MODEL COMPONENT: VERTICAL - V_8

GENERAL DESCRIPTION: Configuration 3A

NOTE: Similar to V5 with radius on TE upper corner and LE lower corner

where vertical meets fuselage.

Model Scale = .030

DRAWING NUMBER: VL70-000140A
VL70-000146A

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area (Theo) Ft^2	413.253	0.37193
Planform		
Span (Theo) In	315.720	9.47160
Aspect Ratio	1.675	1.675
Rate of Taper	0.507	0.507
Taper Ratio	0.40399	0.40399
Sweep Back Angles, degrees		
Leading Edge	45.00	45.00
Trailing Edge	25.947	25.947
0.25 Element Line	41.130	41.1300
Chords:		
Root (Theo) WP	268.500	8.05500
Tip (Theo) WP	108.470	3.25410
MAC	199.80756	5.99423
Fus. Sta. of .25 MAC	1463.50	43.9050
W. P. of .25 MAC	635.522	19.06566
B. L. of .25 MAC	0.00	0.00
Airfoil Section		
Leading Wedge Angle Deg	10.00	10.00
Trailing Wedge Angle Deg	14.920	14.920
Leading Edge Radius (Min) - IN.	2.00	0.060
Void Area	13.17	0.01185
Blanketed Area	0.00	0.00

TABLE III. - Concluded.

MODEL COMPONENT: WING - W$_{116}$

GENERAL DESCRIPTION: Configuration 4

NOTE: Identical to W$_{114}$ except airfoil thickness. Dihedral angle is along

trailing edge of wing.

Model Scale = .030

TEST NO.

DWG. NO. VL70-000140B / VL70-000200

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area (Theo.) Ft^2		
Planform	2690.00	2.4210
Span (Theo In.	936.6816	28.10045
Aspect Ratio	2.265	2.265
Rate of Taper	1.177	1.177
Taper Ratio	0.200	0.200
Dihedral Angle, degrees(at X$_o$=1506.623,Y$_o$=	3.500	3.500
Incidence Angle, degrees 105, Z$_o$= 282.75)	0.500	0.500
Aerodynamic Twist, degrees	+3.000	+3.000
Sweep Back Angles, degrees		
Leading Edge	45.00	45.00
Trailing Edge	-10.056	-10.056
0.25 Element Line	35.209	35.209
Chords:		
Root (Theo) B.P.O.O.	689.2429	20.67729
Tip, (Theo) B.P.	137.8486	4.13546
MAC	474.8117	14.24435
Fus. Sta. of .25 MAC	1126.721	33.80163
W.P. of .25 MAC	291.00	8.73000
B.L. of .25 MAC	187.33491	5.62005
EXPOSED DATA		
Area (Theo) Ft^2	1812.2205	1.63010
Span, (Theo) In. BP108	736.6816	22.10045
Aspect Ratio	2.058	2.058
Taper Ratio	0.2451	0.2451
Chords		
Root BP108	570.6230	17.11869
Tip 1.00 $\frac{b}{2}$	137.8512	4.13554
MAC	354.2376	10.62713
Fus. Sta. of .25 MAC	1164.237	34.92711
W.P. of .25 MAC	292.00	8.76000
B.L. of .25 MAC	239.67786	7.19034
Airfoil Section (Rockwell Mod NASA)		
XXXX-64		
Root $\frac{b}{2}$ = 0.425	0.113	0.113
Tip $\frac{b}{2}$ = 1.00	0.12	0.12
Data for (1) of (2) Sides		
Leading Edge Cuff		
Planform Area Ft^2	118.333	0.10650
Leading Edge Intersects Fus M. L. @ Sta	505.0	15.15000
Leading Edge Intersects Wing @ Sta	1003.5	30.10500

TABLE IV. – ORBITER FUSELAGE PRESSURE ORIFICE LOCATIONS

ORBITER Xo IN.			RADIAL LOCATION ∅ DEGREES																		
FULL	MODEL	Xo/lo	0	20	40	55	70	90	105	110	120	135	140	150	151	156	162	165	169	174	180
235	7.05	0	6																		
245	7.35	.008	7					8													9
265	7.95	.023	10	11	12	13	14	15			16			17							18
295	8.85	.047	19	20	21	22	23	24			25			26							27
325	9.75	.070	28	29	30	31	32	33			34			35							36
380	11.40	.112	37	38	39	40	41	42			43			44							45
440	13.20	.159																		46	
450	13.50	.167	47	48	49	50	51	52			53					54			55		56
465	13.95	.178													57		58				
500	15.00	.205	59	60	61	62	63	64			65		66	67				68			69
560	16.80	.252	70		71		72	73			74			75				76			77
625	18.75	.301	78		79		80	81			82			83				84			85
725	21.75	.379	86		87		88	89			90			91				92			93
880	26.40	.499	94		95		96	97			98			99				100			101
980	29.40	.576	102		103																
1080	32.40	.655	104		105		106	107			108			109				110			111
1180	35.40	.730	112		113		114	115			116			117							118
1245	37.35	.781	119		120		121	122	123		124	125		126				127			128
1300	39.00	.825	129		130		131	132	133		134	135		136							137
1375	41.25	.882	138		139		140	141	142		143	144		145				146			
1430	42.90	.923	147		148		149	150	151		152	153		154				155			
1480	44.40	.963	156		157		158	159	160		161	162		163				164			
a 1530	45.90	1.002								165	166										
b 1530	45.90	1.002								167	168										
1555	46.65	1.021	169		170																
c 1590	47.70	1.048	171		172																
d 1590	47.70	1.048	173		174																

ℓo = 1293.3 full scale   a: OMS pod, inside   c: Body flap lower surface

ℓo = 38.799 model   b: OMS pod, outside   d: Body flap upper surface

data in datasets RB3BXX

TABLE V. – ORBITER WING PRESSURE ORIFICE LOCATIONS

x/c ~ LOCAL WING CHORD

ORBITER B.P. Z/o			0	.02	.04	.05	.08	.091 .094	.150	.165	.172	.229	.246	.250	.274	.382	.390	.402 .40	.497	.55	.565	.60	.65	.70 .725	.75	.760	.775	.834	.85 .857	.865	.90	.905	.95	.955	.975
FULL MODEL																																			
140 4.20 .299	U					180		181			182					183			184					185				186	187		188	187		189		189
	L.E.	179																																	
	L				190		191			192					193								195				196	197		198				195
170 5.10 .364	U				201		202		203			204				205																			
	L.E.	200																																	
	L				206		207		208		209					210																			
200 6.00 .427	U		212	213		214		215			216			217										219		220		221			227			221
	L.E.	211																																	
	L		226	225		224		227			228			229				230					231		232		233			234			235
230 7.50 .534	U	237		238	239							241			242			243				244			246								
	L.E.	236																																	
	L	249		250	251		252				253			254			255				256			257		258			260				248
315 9.45 .673	U	261		262	263		264				265			266			267				268			269		270			272				271
	L.E.			272	273		274				276			276			277				278			279		280			281				
365 10.95 .780	U	282		283	284		285				286									287		288			289			290				
	L.E.			291	292		293				294									295		296			297			298				
415 12.45 .887	U	299		300	301		302				303					304				305		306			307			315				
	L			309	308		310				311					312				313		314			315							

1 — x/c = .19
2 — X/c = .34
3 — X/c = .03
4 — ∨/c = .045

data in datasets RB3UXX (upper) and RB3LXX (lower)

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TABLE VI. - ORBITER VERTICAL TAIL PRESSURE ORIFICE LOCATIONS

VERTICAL $W_L \sim Z_o$				x/C_V								
FULL	MODEL	ηV		0	.025	.05	.15	.30	.52	.685	.775	.90
550	16.50	.158	RH			324	325	326	327	328	329	
			LE	316								
			LH		317	318	319	320	321	322	323	
600	18.00	.316	RH			339	340	341	342	343	344	345
			LE	330								
			LH		331	332	333	334	335	336	337	338
690	20.70	.600	RH			355	356	357	358	359	360	361
			LE	346								
			LH		347	348	349	350	351	352	353	354
765	22.95	.840	RH			371	372	373	374	375	376	377
			LE	362								
			LH		363	364	365	366	367	368	369	370
792	23.76	.925	RH			387	388	389	390	391	392	393
			LE	378								
			LH		379	380	381	382	383	384	385	386

data in datasets RB3VXX (left side) and RB3RXX (right side)

TABLE VII. - ORBITER BASE, BODYFLAP, AND OMS NOZZLE PRESSURE ORIFICE LOCATIONS

ORBITER BASE

LOCATION	ORIFICE NUMBER
Orbiter Sting Cavity	1
Orbiter Base (Lower Left Corner)	2
OMS Nozzle Base	3

data in datasets RB3CXX

RUDDER FLARE BASE

RUDDER $W_L \sim Z_o$		X/C_V
FULL	MODEL	.75
725	18.75	4
625	21.75	5

data in datasets RB3CXX

BODY FLAP

ORBITER $\sim X_o$		$\emptyset \sim$ Deg	
FULL	MODEL	0	40
1555	46.65	169	170
1590	47.70	Upper 173	174
1590	47.70	Lower 171	172

data in datasets RB3FXX

LEFT OMS NOZZLE SURFACE

$X \sim$ IN. FWD. NOZZLE EXIT		$\emptyset \sim$ DEG.		
FULL	MODEL	135	180	225
10	.30	175	176	177
20	.60		178	

data in datasets RB3EXX

TABLE VIII. – EXTERNAL TANK PRESSURE ORIFICE LOCATIONS

TANK STATION $\sim X_T$			$\emptyset \sim$ DEG.									
FULL SCALE	MODEL SCALE	$\frac{X_T}{\ell_T}$	0	30	60	90	120	135	150	165	180	270
309	9.27	0	503			505					506	507
324	9.72	.008	504								514	
400	12.00	.049	508	509	510	511	512		513			
520	15.60	.113	515	516	517	518	519		520	521	522	
640	19.20	.178	523	524	525	526	527		528	529	530	
670	20.10	.194	531	532	533	534	535		536	537	538	
710	21.30	.215	539	540	541	542	543		544	545	546	
760	22.80	.242	547	548	549	550	551	552	553	554	555	
850	25.50	.290	556	557	558	559	560		561	562	563	564
950	28.50	.344	565	566	567		568	569	570	571	572	
1050	31.30	.394	573	574	575	576	577		578	579	580	
1150	34.50	.451	581	582	583	584	585	586	587	588	589	
1250	37.50	.505	590	591	592	593	594		595	596	597	
1350	40.50	.558	598	599	600	601	602	603	604	605	606	
1500	45.00	.638	607	608	609	610	611		612	613	614	
1700	51.00	.746	615	616	617	618	619	620	621	622	623	
1900	57.00	.853	624	625	626	627	628	629	630	631	632	
2040	61.20	.928	633	634	635		636	637	638	639	640	
TANK BASE STING CAVITY			501								502	

ℓ_T = 1865 IN. FULL SCALE
55.950 IN. MODEL SCALE

data in datasets RB3TXX

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TABLE IX. LEFT SRM PRESSURE ORIFICE LOCATIONS

SRM STATION ~ X_s			$\emptyset$ ~ DEG.							
FULL SCALE	MODEL SCALE	$\dfrac{X_s}{l_s}$	0	45	90	135	180	225	270	315
200	6.00	0	805							
260	7.80	.034	806	807	808	809	810	811	812	813
370	11.10	.098	814	815	816	817	818	819	820	821
400	12.00	.115	822	823	824	825	826	827		828
450	13.50	.144	829	830	831	832	833	834	835	836
550	16.50	.201	837	838	839	840	841	842	843	844
700	21.00	.287	845		846		847	848	849	850
850	25.50	.373	851		852		853		854	
1050	31.50	.488	855		856		857			
1250	37.50	.603	858		859		860			
1450	43.50	.718	861		862		863		864	
1650	49.50	.833	865		866		857		868	
1750	52.50	.890	869	870	871	872	873	874	875	876
1796	53.88	.917	877	878	879	880	881	882	883	884
1835	55.05	.939	885	886	887	888	889	890	891	892
1868	56.04	.958	893	894	895	896	897	898	899	900
SKIRT BASE			802			803		804		
NOZZLE BASE			801							
NOZZLE EXTERNAL PRESSURES										
1850	55.50	.948	901	902	903	904	905	906	907	908
1905	57.15	.979	909	910	911	912	913	914	915	916
1923	57.84	.993	917	918	919	920	921	922	923	924

l_s = 1741 IN. FULL SCALE
          52.23 IN. MODEL SCALE

data in datasets RB3SXX

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TABLE X. ORBITER ATTACH POINT PRESSURE ORIFICE LOCATIONS

n	F.S. Y_o	MODEL Y_o	347	357	367	377	387	397	407	1252	1262	1272	1282	1292	1302	1312	1322	1332
X_o FULL SCALE			10.41	10.71	11.01	11.31	11.61	11.91	12.21	37.56	37.86	38.16	38.46	38.76	39.06	39.36	39.96	40.26
X_o MODEL X_o/R_o			.087	.095	.102	.110	.118	.126	.133	.788	.796	.804	.811	.819	.827	.835	.850	.858
.021	10	.30	394	397					412				436	447		468	474	480
.043	20	.60		396	399	403	407	411	415				435	446	457	467	473	479
.064	30	.90		395	398	402	406	410	414				434	445	456	466	472	478
.085	40	1.20				401	405	409	413				433	444	455	465	471	477
.107	50	1.50											432	443	454	464	470	476
.149	60.75	2.09											431	442	453	463	469	475
.170	79.75	2.39										424	430	441	452	462		
.192	89.75	2.69									419	423	429	440	451	461		
.213	99.75	2.99								416	418	422	428					
.231	109.75	3.29									417	421	427	439	450	460		
.256	119.75	3.59										420	426	438	449	459		
.277	129.75	3.89											425	437	448	458		

data in datasets RB31XX

TABLE XI. – EXTERNAL TANK ATTACH POINT PRESSURE ORIFICE LOCATIONS

X_T Full Scale	1103	1093	1083	1073	1063	1053	1043	
X_T Model Scale	33.09	32.79	32.49	32.19	31.89	31.59	31.29	
$X_T/1_T$	.424	.419	.413	.408	.402	.397	.391	
								$\emptyset$ DEG.
FWD ATTACH POINT (ORBITER TO E-T)	684	676	668	660				182.84
	685	677	669	661				186.38
	686	678	670	662	655			189.92
	687	679	671	663	656	652		193.46
	688	680			657	653	651	197.0
	689	681	673	665	658	654		200.54
	690	682	674	666	659			204.08
	691	683	675	667				207.62

data in datasets RB32XX

X_T FULL SCALE	1874	1864	1854	1844	1834	1824	1814	
X_T MODEL SCALE	56.22	55.92	55.62	55.32	55.02	54.72	54.42	
X_T/ℓ_T	.839	.834	.828	.823	.818	.812	.807	
								$\emptyset \sim$ DEG.
	719	713	707					222.84
FWD DRAG LINK ATTACH POINT	720	714	708	701				226.38
	721	715	709	702	696			229.92
	722		710	703	697	693		233.46
				704	698	694	692	237.00
					699	695		240.54
	723	718	712	706	700			244.08

data in datasets RB32XX
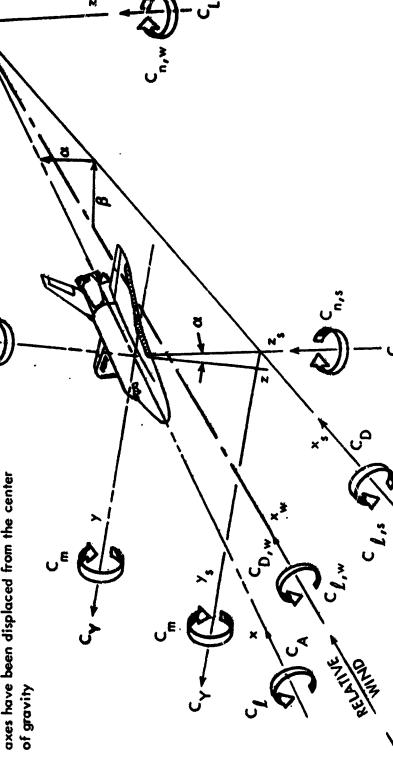
TABLE XI. - EXTERNAL TANK ATTACH POINT PRESSURE ORIFICE LOCATION - Concluded.

	2078	2068	2058	2048	2038	2028	2018	
X_T FULL SCALE	2078	2068	2058	2048	2038	2028	2018	
X_T MODEL SCALE	62.34	62.04	61.74	61.44	61.14	60.84	60.54	
X_T/ℓ_T	.948	.943	.938	.932	.927	.921	.916	
								Ø ~ DEG.
	777	766	734					234.04
	778	767	755	742				237.58
	779	768	756	743	732			241.12
AFT UPPER ATTACH	780	769		744	733	726		244.66
	781	770		745	734	727	724	248.2
				746	735	728		251.74
		771	759	747	736			255.28
	782	772	760					323.51
	783	773	761	748				327.05
AFT LOWER ATTACH	784	774	762	749	737			330.59
	785.	775		750	738	729		334.13
	786	776 -		751	739	730	725	337.67
				752	740	731		341.21
			765	753	741			344.75

data in datasets RB32XX

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Notes:

1. Positive directions of force coefficients, moment coefficients, and angles are indicated by arrows

2. For clarity, origins of wind and stability axes have been displaced from the center of gravity
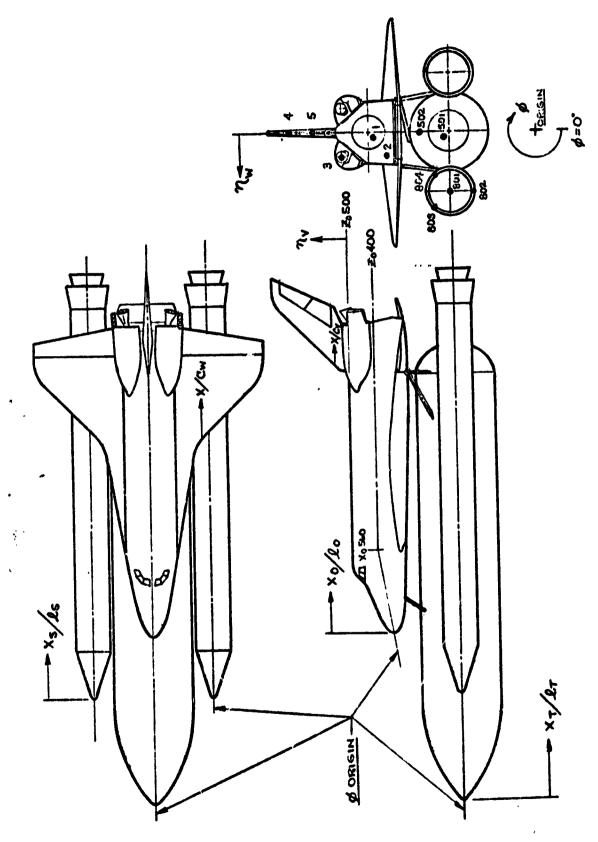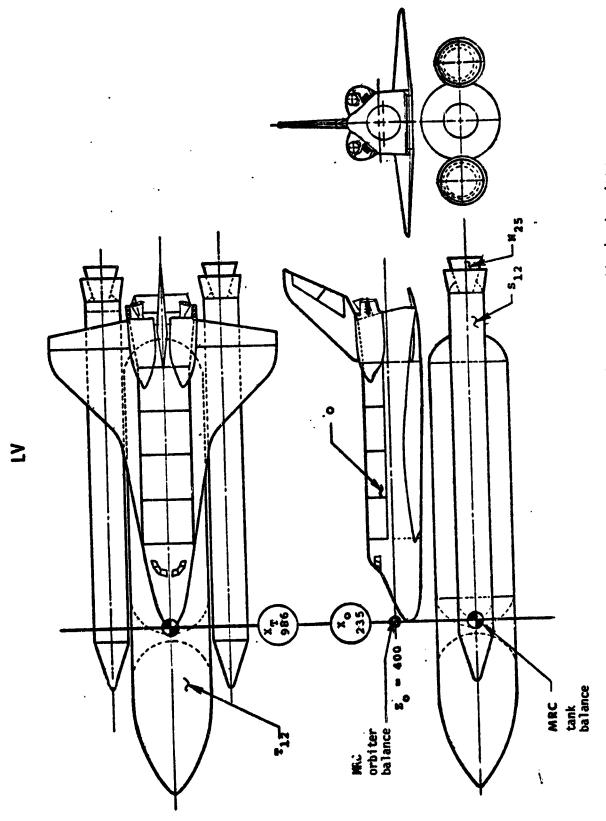
a. Stability and body axis systems.

Figure 1. – Axis systems.

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b. Orifice location nomenclature diagram

Figure 1. – Concluded

LV

x_T 986

x_o 235

$z_o = 400$

s_{12}

N_{25}

s_{12}

MRC orbiter balance

MRC tank balance
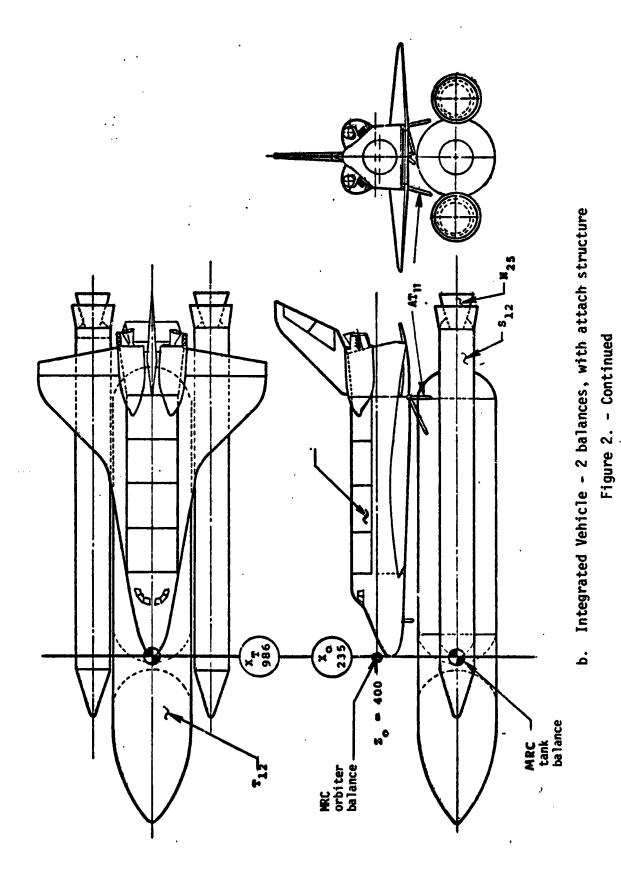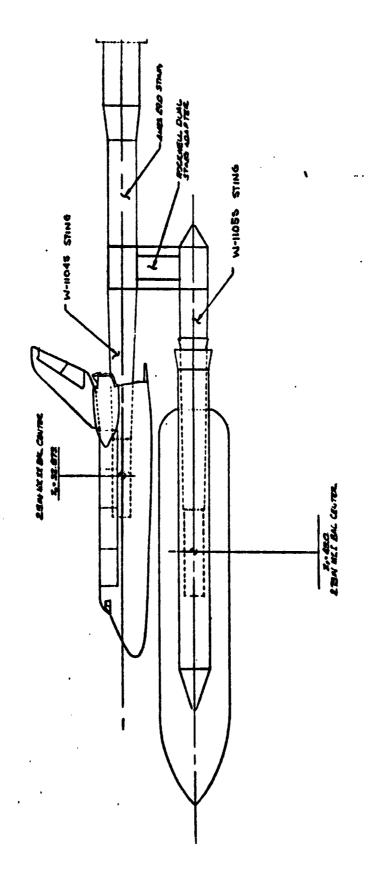
a. Integrated Vehicle – 2 balances, no attach structure

Figure 2. – Model sketches.

LVAP

x_T 986

x_o 235

$z_o = 400$

s_{12}

MRC orbiter balance

MRC tank balance

AT_{11}

N_{25}

s_{12}

b. Integrated Vehicle – 2 balances, with attach structure

Figure 2. – Continued

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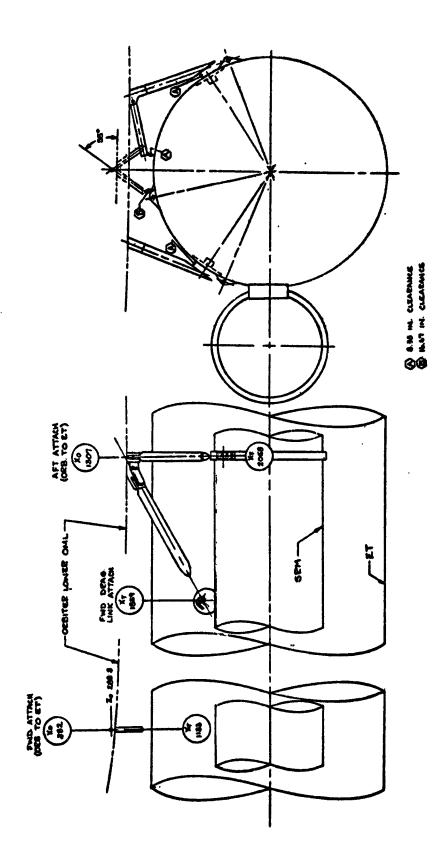
DUAL BALANCE CONFIGURATION ~ LV & LVAP
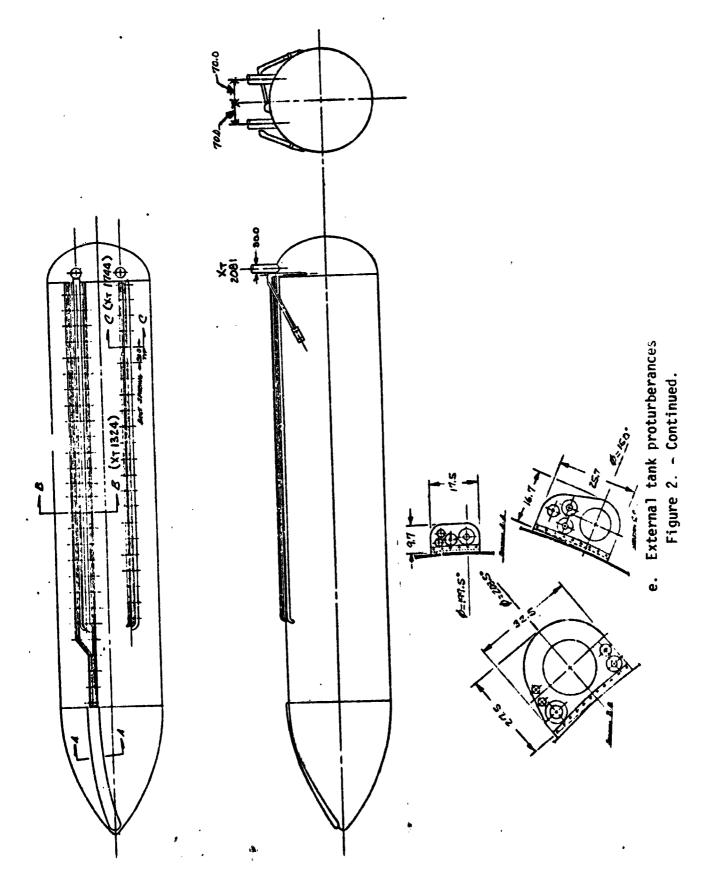
c. Installation side view

Figure 2. – Continued.
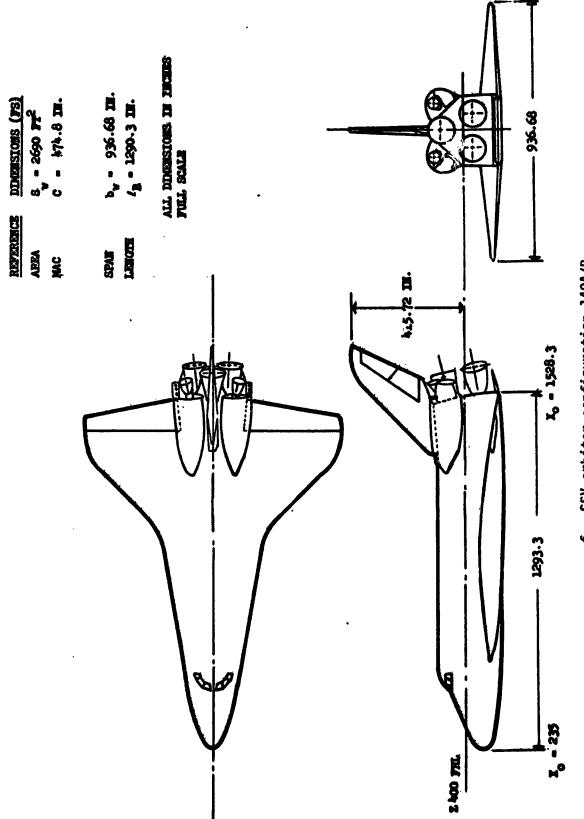
d. ATTACH HARDWARE CONFIGURATION — A_{T11}

Figure 2. – Continued.

e. External tank proturberances
Figure 2. – Continued.

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REFERENCE DIMENSIONS (FS)

AREA $S_V = 2690$ ft^2

MAC $C = 474.8$ in.

SPAN $b_V = 936.68$ in.

LENGTH $l_B = 1290.3$ in.

ALL DIMENSIONS IN INCHES
FULL SCALE

f.   SSV orbiter configuration 140A/B

Figure 2. – Continued

g. Orbiter nomenclature

Figure 2. - Continued

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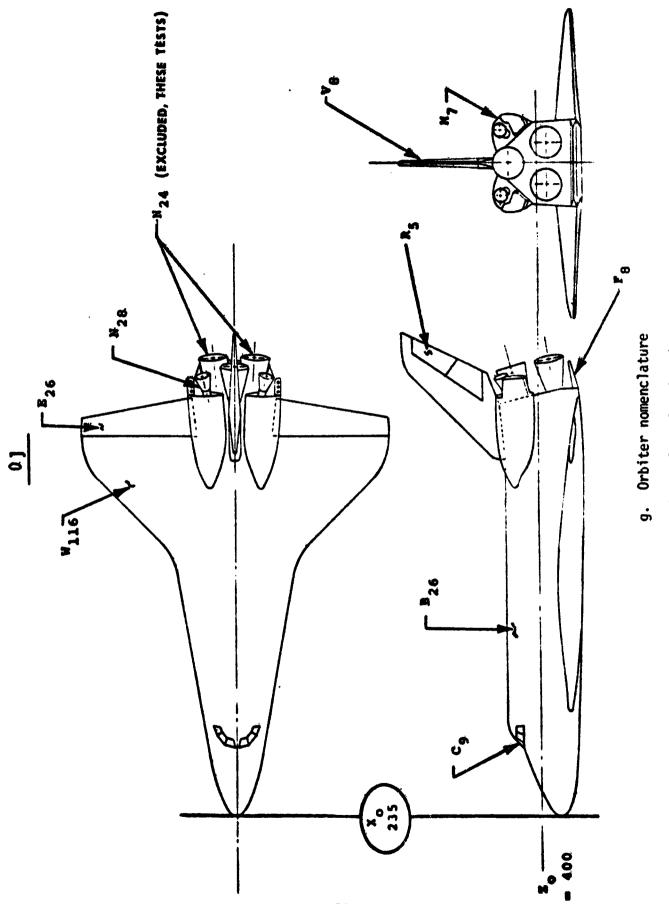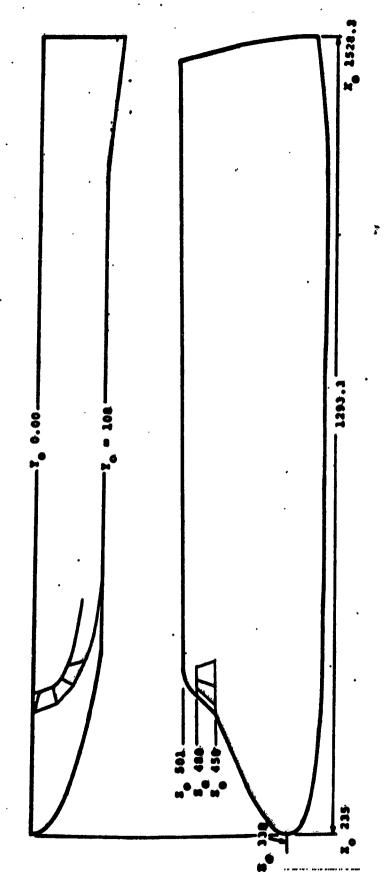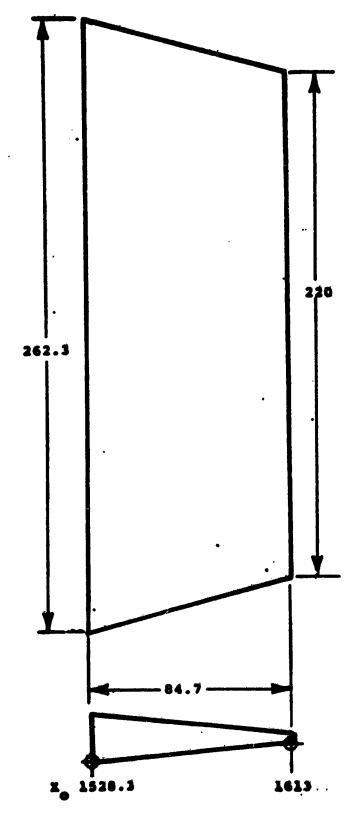
h. Canopy, Cg, and body, B_{26}, lines drawing VL70-000193 and VL70-000140A/B

Figure 2. - Continued

i. M_7 - OMS pod

Figure 2. - Continued

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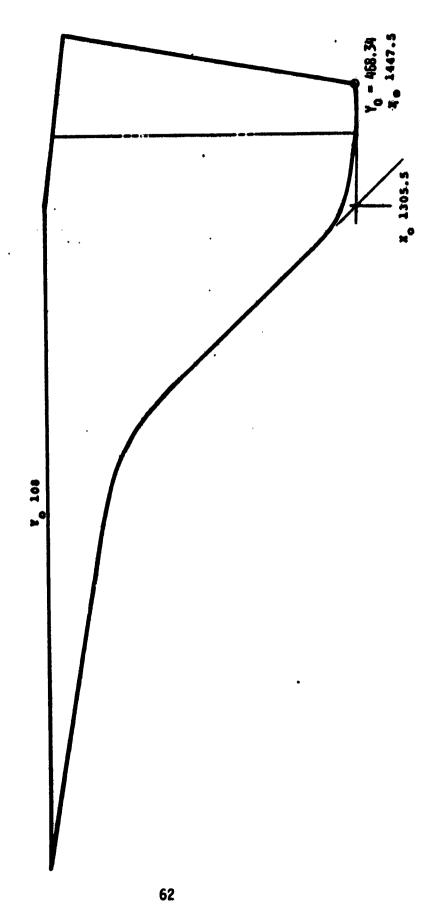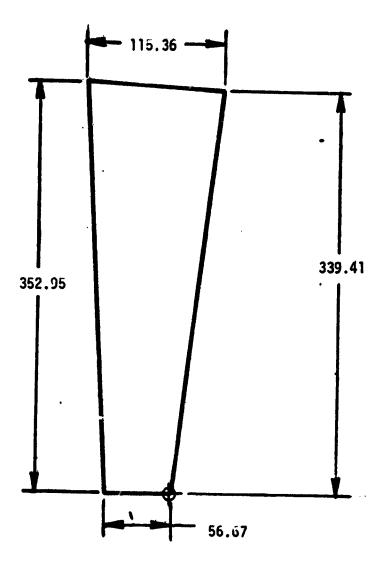
j. Body flap, F_8, lines drawing VL70-000140A/B

Figure 2. - Continued

k. Wing. W_{116}, lines drawing no. VL70-000200

Figure 2. - Continued
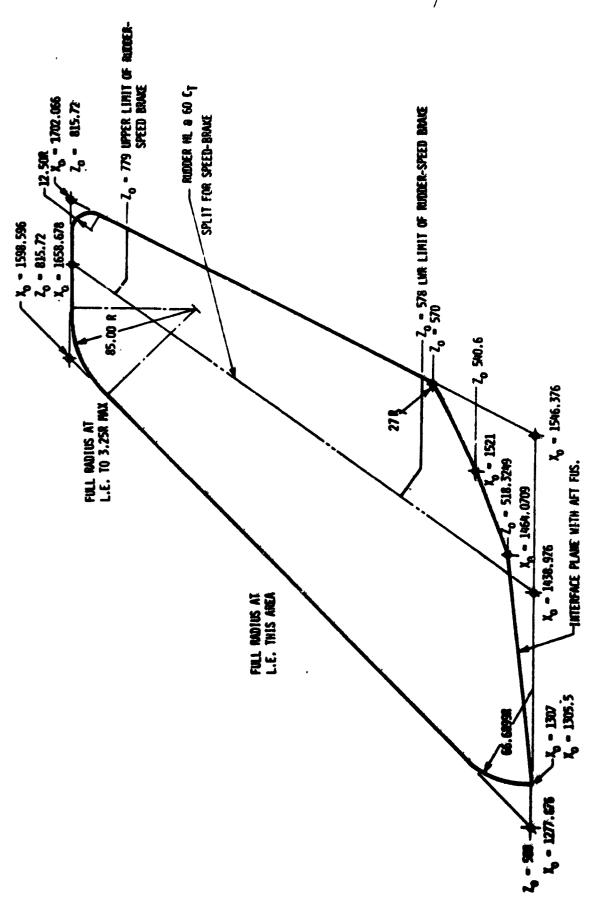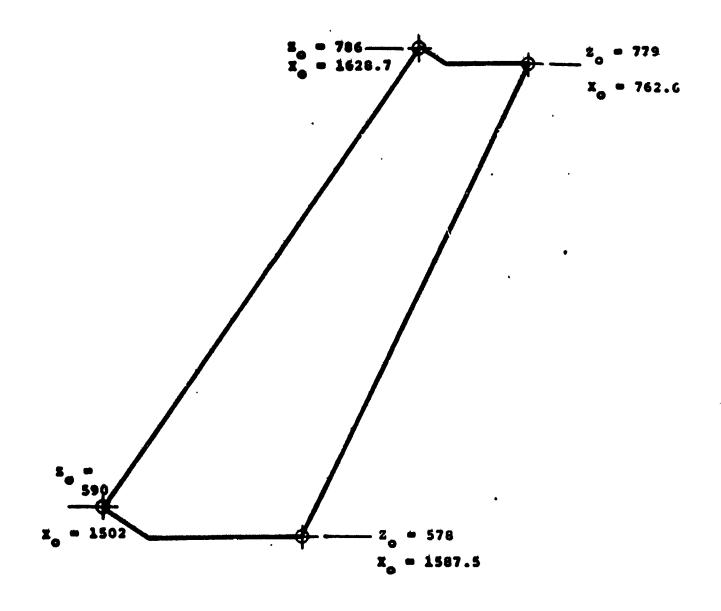
1. Elevon, E_{26}, lines drawing VL70-000200, VL70-000140 A/B

Figure 2. - Continued
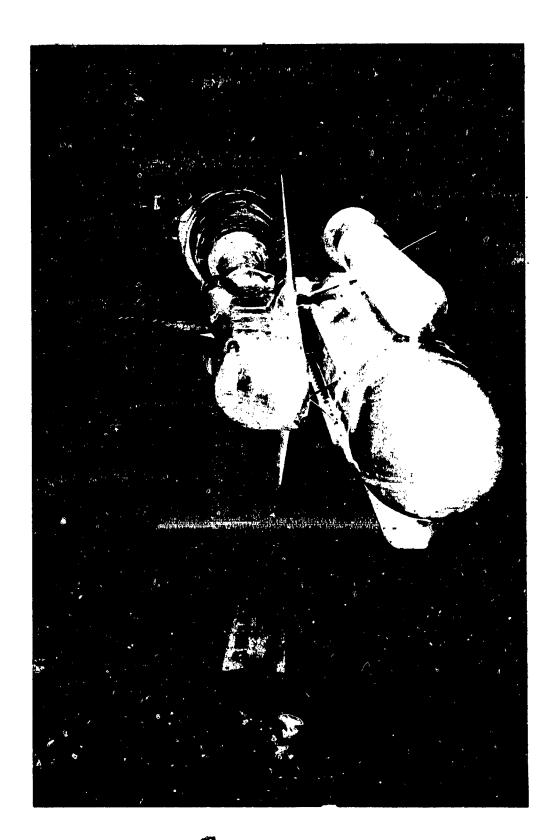
m. Vertical tail, V_8, and rudder, R_5, lines drawing 70-000146A

Figure 2. – Continued

$z_o = 786$
$x_o = 1628.7$

$z_o = 779$

$x_o = 762.6$

$z_o = 590$
$x_o = 1502$

$z_o = 578$
$x_o = 1587.5$

n. Rudder, R_5, lines drawing no. VL70-000095

Figure 2. - Concluded
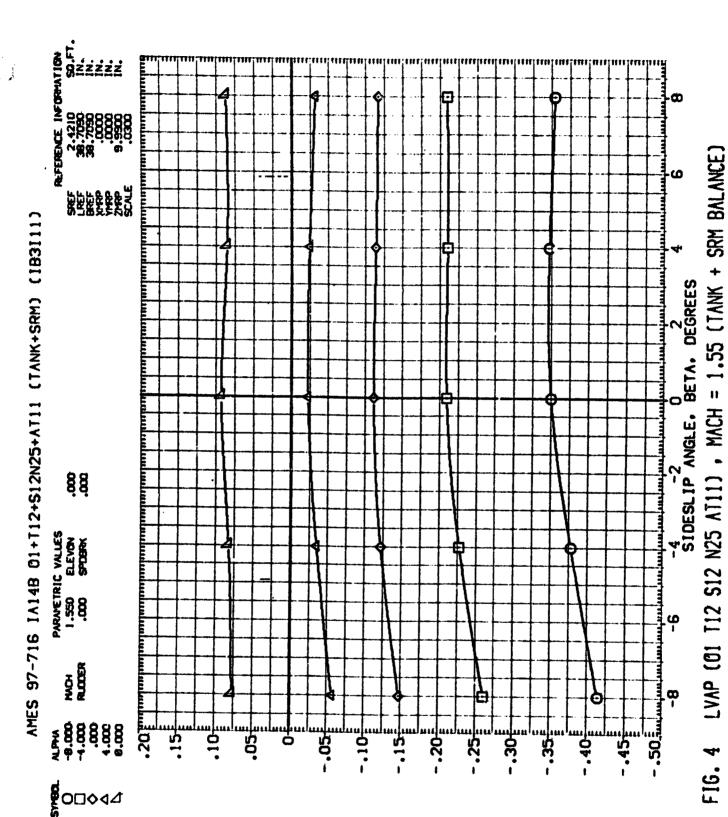
a. Front view of model installed in tunnel

Figure 3. – Continued.
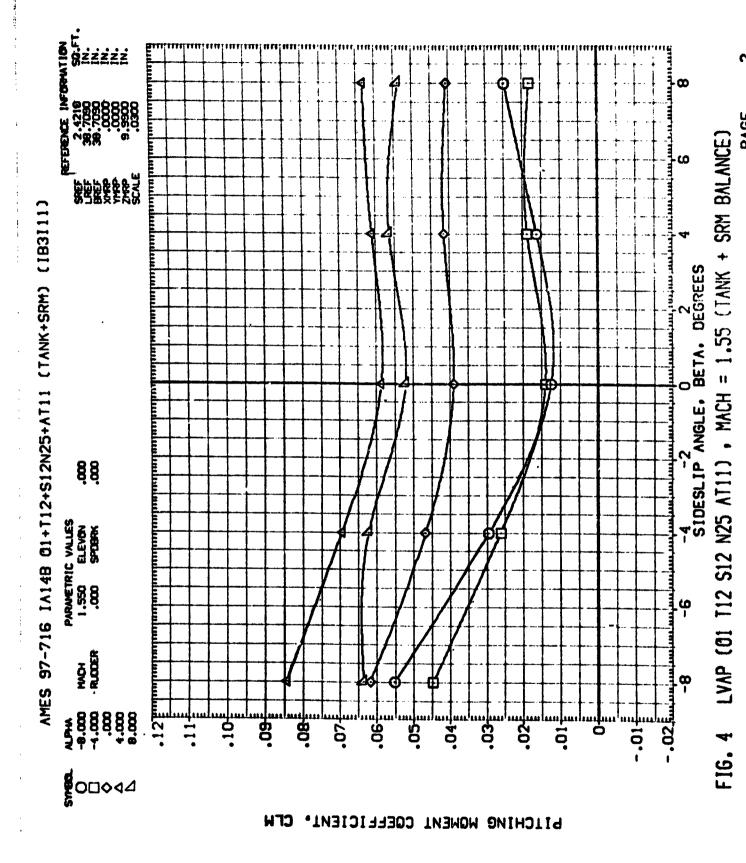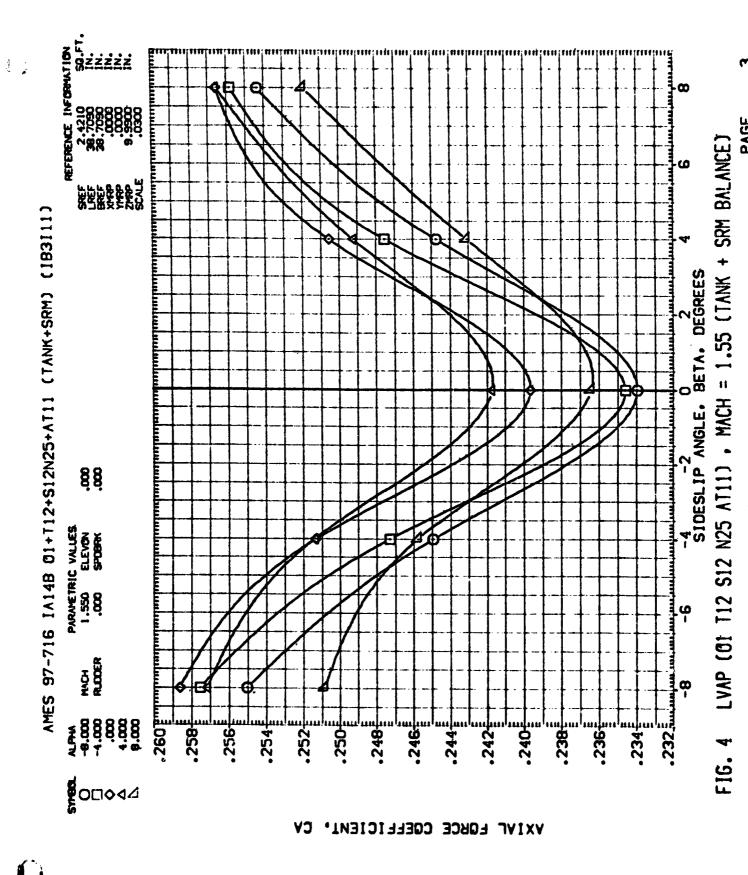
b. Rear view of model installed in tunnel

Figure 3. - Concluded.

FIG. 4 LVAP (O1 T12 S12 N25 AT11) , MACH = 1.55 (TANK + SRM BALANCE)

PAGE   1

AMES 97-716 IA14B 01+T12+S12N25+AT11 (TANK+SRM) (IB3111)

FIG. 4   LVAP (01 T12 S12 N25 AT11) , MACH = 1.55 (TANK + SRM BALANCE)

PAGE   2

FIG. 4   LVAP (O1 T12 S12 N25 AT11) , MACH = 1.55 (TANK + SRM BALANCE)

PAGE   3

AMES 97-716 IA14B 01+T12+S12N25+AT11 [TANK+SRM] [IB3111]

FIG. 4   LVAP (01 T12 S12 N25 AT11) , MACH = 1.55 (TANK + SRM BALANCE)

PAGE   4

AMES 97-716 IA14B O1+T12+S12N25+AT11 (TANK+SRM) (IB3I11)

FIG. 4 LVAP (O1 T12 S12 N25 AT11) , MACH = 1.55 (TANK + SRM BALANCE)

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AMES 97-716 IA14B 01+T12+S12N25+AT11 (TANK+SRM) (IB3111)

FIG. 4   LVAP (01 T12 S12 N25 AT11) , MACH = 1.55 (TANK + SRM BALANCE)

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AMES 97-716 IA14B O1+T12+S12N25+AT11 (TANK+SRM) (IB3I11)

FIG. 4 LVAP (O1 T12 S12 N25 AT11) , MACH = 1.55 (TANK + SRM BALANCE)

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AMES 97-716 IA14B 01+T12+S12N25+AT11 (TANK+SRM) (IB3I12)

FIG. 5 LVAP (OI T12 S12 N25 AT11) , MACH = 2.2 (TANK + SRM BALANCE)

PAGE 8

FIG. 5   LVAP (01 T12 S12 N25 AT11) , MACH = 2.2   (TANK + SRM BALANCE)

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FIG. 5   LVAP (O1 T12 S12 N25 AT11) , MACH = 2.2 (TANK + SRM BALANCE)

PAGE   1Q

FIG. 5   LVAP (O1 T12 S12 N25 AT11) , MACH = 2.2 (TANK + SRM BALANCE)

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AMES 97-716 IA14B O1+T12+S12N25+AT11 (TANK+SRM) (IB3112)

FIG. 5 LVAP (O1 T12 S12 N25 AT11) , MACH = 2.2 (TANK + SRM BALANCE)

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AMES 97-716 IA14B O1+T12+S12N25+AT11 (TANK+SRM) (IB3I12)

FIG. 5 LVAP (O1 T12 S12 N25 AT11) , MACH = 2.2 (TANK + SRM BALANCE)

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AMES 97-716 IA14B O1+T12+S12N25+AT11 (TANK+SRM) (IB3I12)

FIG. 5   LVAP (O1 T12 S12 N25 AT11) , MACH = 2.2 (TANK + SRM BALANCE)

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FIG. 6   LV (01 T12 S12 N25) , MACH = 1.55 (TANK + SRM BALANCE)

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AMES 97-716 IA14B O1+T12+S12N25　　(TANK+SRM) (IB3113)

PARAMETRIC VALUES

MACH　1.550　ELEVON　.000
RUDDER　.000　SPDBRK　.000

ALPHA
-8.000
-4.000
.000
4.000
8.000

SYMBOL
O □ ◇ △ △

PITCHING MOMENT COEFFICIENT, CLM

.050 .045 .040 .035 .030 .025 .020 .015 .010 .005 0 -.005 -.010 -.015

-8 -6 -4 -2 0 2 4 6 8

SIDESLIP ANGLE, BETA, DEGREES

FIG. 6　LV (O1 T12 S12 N25) , MACH = 1.55 (TANK + SRM BALANCE)

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FIG. 6 LV (01 T12 S12 N25) , MACH = 1.55 (TANK + SRM BALANCE)

FIG. 6   LV (O1 T12 S12 N25) , MACH = 1.55 (TANK + SRM BALANCE)

AMES 97-716 IA14B O1+T12+S12N25   (TANK+SRM) (IB3I13)

FIG. 6   LV (O1 T12 S12 N25) , MACH = 1.55 (TANK + SRM BALANCE)

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FIG. 6   LV (O1 T12 S12 N25) , MACH = 1.55 (TANK + SRM BALANCE)

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FIG. 6   LV (01 T12 S12 N25) , MACH = 1.55 (TANK + SRM BALANCE)

FIG. 7   LV (01 T12 S12 N25) , MACH = 2.2   (TANK + SRM BALANCE)

FIG. 7   LV (O1 T12 S12 N25) , MACH = 2.2 (TANK + SRM BALANCE)

FIG. 7 LV (01 T12 S12 N25) . MACH = 2.2 (TANK + SRM BALANCE)

FIG. 7 LV (O1 T12 S12 N25), MACH = 2.2 (TANK + SRM BALANCE)

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FIG. 7   LV (G1 T12 S12 N25) , MACH = 2.2   (TANK + SRM BALANCE)

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FIG. 7 LV (O1 T12 S12 N25) , MACH = 2.2 (TANK + SRM BALANCE)

FIG. 7   LV (O1 T12 S12 N25) , MACH = 2.2 (TANK + SRM BALANCE)

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AMES 97-716 IA14B O1+T12+S12N25+AT11 (ORBITER)   (IB3011)

FIG. 8   LVAP (O1 T12 S12 N25 AT11) , MACH = 1.55 (ORBITER BALANCE)

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AMES 97-716 IA14B O1+T12+S12N25+AT11 (ORBITER) (IB3011)

FIG. 8 LVAP (O1 T12 S12 N25 AT11) , MACH = 1.55 (ORBITER BALANCE)

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AMES 97-716 IA14B O1+T12+S12N25+AT11 (ORBITER) (IB3011)

FIG. 8 LVAP (O1 T12 S12 N25 AT11) , MACH = 1.55 (ORBITER BALANCE)

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FIG. 8   LVAP (01 T12 S12 N25 AT11) , MACH = 1.55 (ORBITER BALANCE)

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AMES 97-716 IA14B O1+T12+S12N25+AT11 (ORBITER) (IB3011)

FIG. 8 LVAP (O1 T12 S12 N25 AT11) , MACH = 1.55 (ORBITER BALANCE)

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AMES 97-716 IA14B O1+T12+S12N25+AT11 (ORBITER)   (IB3011)

PARAMETRIC VALUES

	MACH	1.550	ELEVON	.000
	RUDDER	.000	SPDBRK	.000

SYMBOL	ALPHA
○	-8.000
□	-4.000
◇	.000
△	4.000
△	8.000

YAWING MOMENT COEFFICIENT, CYN   (BODY AXIS)

SIDESLIP ANGLE, BETA, DEGREES

FIG. 8   LVAP (O1 T12 S12 N25 AT11) , MACH = 1.55 (ORBITER BALANCE)

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FIG. 8   LVAP (01 T12 S12 N25 AT11) , MACH = 1.55 (ORBITER BALANCE)

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AMES 97-716 IA14B OI+TI2+SI2N25+ATII (ORBITER) (IB3012)

FIG. 9 LVAP (OI TI2 SI2 N25 ATII) , MACH = 2.2 (ORBITER BALANCE)

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AMES 97-716 IA14B O1+T12+S12N25+AT11 (ORBITER)   (IB3012)

FIG. 9   LVAP (O1 T12 S12 N25 AT11) , MACH = 2.2 (ORBITER BALANCE)

AMES 97-716 IA14B OI+T12+S12N25+AT11 (ORBITER) (IB3012)

FIG. 9 LVAP (OI T12 S12 N25 AT11) , MACH = 2.2 (ORBITER BALANCE)

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AMES 97-716 IA14B 01+T12+S12N25+AT11 (ORBITER) (IB3012)

FIG. 9 LVAP (01 T12 S12 N25 AT11) , MACH = 2.2 (ORBITER BALANCE)

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FIG. 9   LVAP (01 T12 S12 N25 AT11) , MACH = 2.2 (ORBITER BALANCE)

PAGE   40

AMES 97-716 IA14B 01+T12+S12N25+AT11 (ORBITER) (IB3012)

FIG. 9 LVAP (01 T12 S12 N25 AT11), MACH = 2.2 (ORBITER BALANCE)

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AMES 97-716 IA14B 01+T12+S12N25+AT11 (ORBITER) (IB3012)

FIG. 9   LVAP (01 T12 S12 N25 AT11) , MACH = 2.2 (ORBITER BALANCE)

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AMES 97-716 [A14B O1+T12+S12N25]   (ORBITER)   (IB3013)

REFERENCE INFORMATION

SREF   2.4210   SQ.FT.
LREF   38.7090   IN.
BREF   38.7090   IN.
XMRP   .0000   IN.
YMRP   .0000   IN.
ZMRP   9.9900   IN.
SCALE   .0300

PARAMETRIC VALUES

ALPHA	MACH	RUDDER	ELEVON	SPDBRK
-8.000	1.550	.000	.000	.000
-4.000				
.000				
4.000				
8.000				

SYMBOL
⊙ ☐ ◇ △ ◁

FIG. 10 LV (O1 T12 S12 N25) , MACH = 1.55 (ORBITER BALANCE)

SIDESLIP ANGLE, BETA, DEGREES

NORMAL FORCE COEFFICIENT, CN

AMES 97-716 IA14B O1+T12+S12N25   (ORBITER)   (IB3013)

FIG. 10 LV (O1 T12 S12 N25) , MACH = 1.55 (ORBITER BALANCE)

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FIG. 10 LV (01 T12 S12 N25), MACH = 1.55 (ORBITER BALANCE)

FIG. 10 LV (01 T12 S12 N25) , MACH = 1.55 (ORBITER BALANCE)

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AMES 97-716 IA14B O1+T12+S12N25   (ORBITER)   (IB3013)

FIG. 10 LV (O1 T12 S12 N25) , MACH = 1.55 (ORBITER BALANCE)

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AMES 97-716 1A14B 01+T12+S12N25　　　　　　　(ORBITER)　(1B3013)

REFERENCE INFORMATION

SREF	2.4210	SQ.FT.
LREF	38.7090	IN.
BREF	38.7090	IN.
XMRP	.0000	IN.
YMRP	.0000	IN.
ZMRP	9.9900	IN.
SCALE	.0300	

PARAMETRIC VALUES

MACH	ELEVON	.000
1.550	.000	
RUDDER	SPDBRK	.000
.000		

ALPHA
-8.000
-4.000
.000
4.000
8.000

SYMBOL
○□◇◁△

FIG. 10 LV (01 T12 S12 N25) , MACH = 1.55 (ORBITER BALANCE)

YAWING MOMENT COEFFICIENT, CYN (BODY AXIS)

SIDESLIP ANGLE, BETA, DEGREES

PAGE　48

AMES 97-716 IA14B 01+T12+S12N25   (ORBITER)   (IB3013)

FIG. 10 LV (01 T12 S12 N25) , MACH = 1.55 (ORBITER BALANCE)

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FIG. 11 LV (O1 T12 S12 N25) , MACH = 2.2 (ORBITER BALANCE)

AMES 97-716 IA14B OI+T12+S12N25   (ORBITER)   (IB3014)

FIG. 11   LV (OI T12 S12 N25) , MACH = 2.2 (ORBITER BALANCE)

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AMES 97-716 IA14B 01+T12+S12N25   (ORBITER)   (IB3014)

FIG. 11 LV (O1 T12 S12 N25) , MACH = 2.2 (ORBITER BALANCE)

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FIG. 11 LV (O1 T12 S12 N25) , MACH = 2.2 (ORBITER BALANCE)

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AMES 97-716 IA14B 01+T12+S12N25   (ORBITER)   (IB3014)

FIG. 11 LV (01 T12 S12 N25) , MACH = 2.2 (ORBITER BALANCE)

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FIG. 11 LV (O1 T12 S12 N25) , MACH = 2.2 (ORBITER BALANCE)

FIG. 11 LV (01 T12 S12 N25) , MACH = 2.2 (ORBITER BALANCE)

PAGE 56
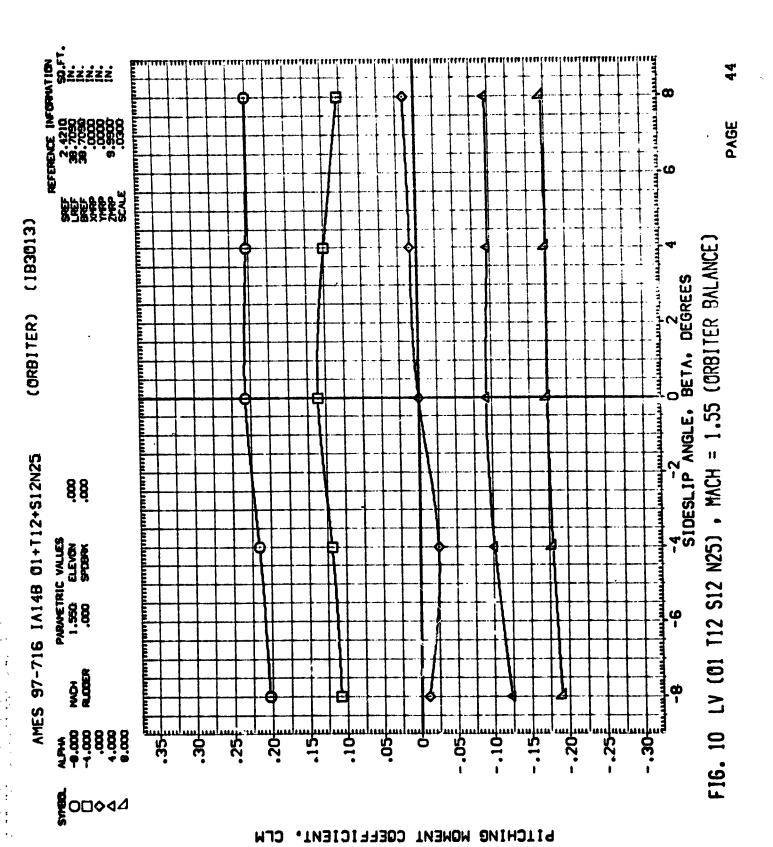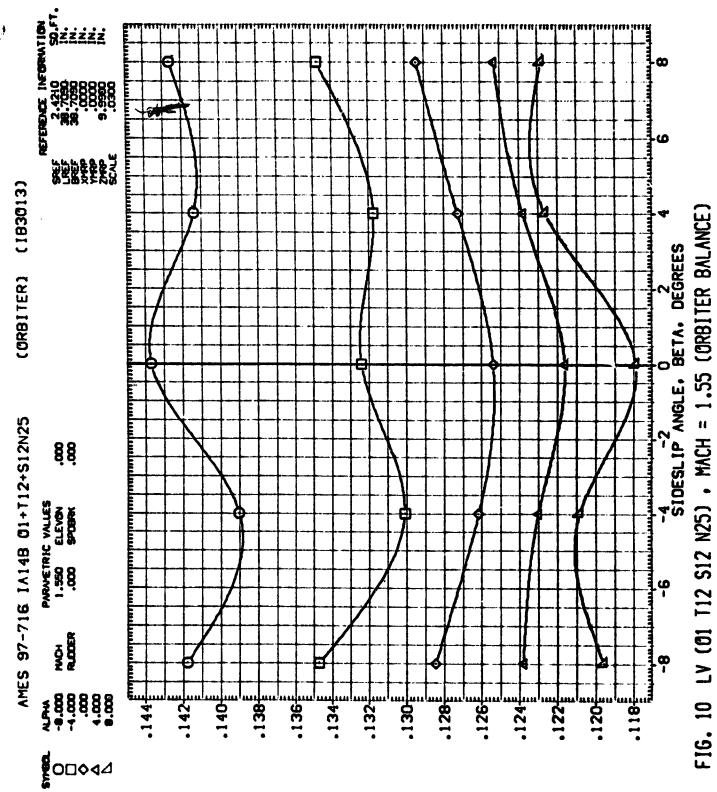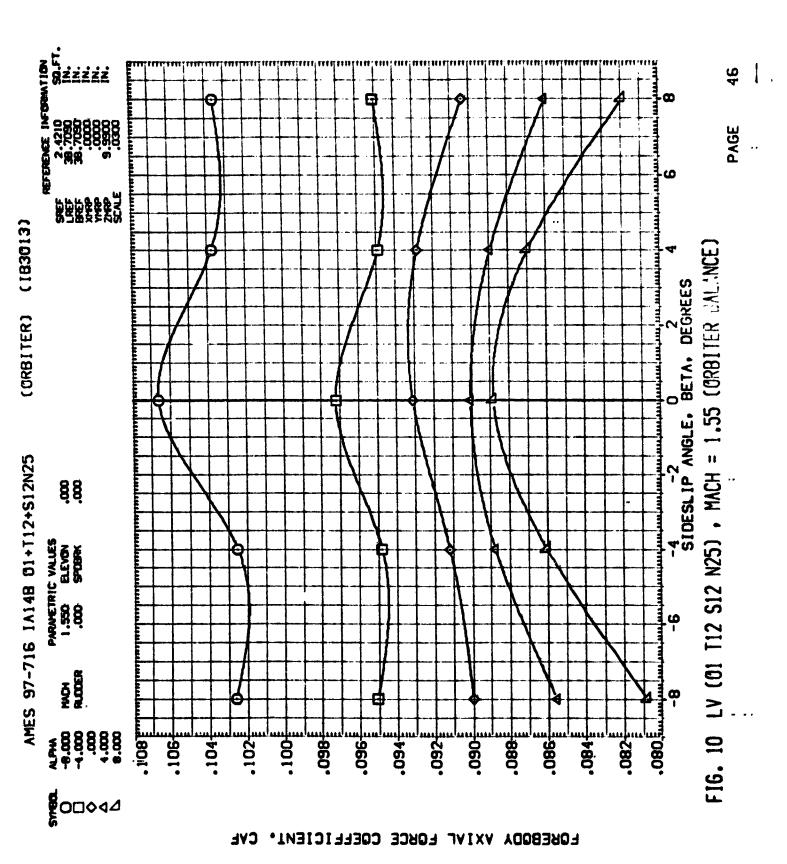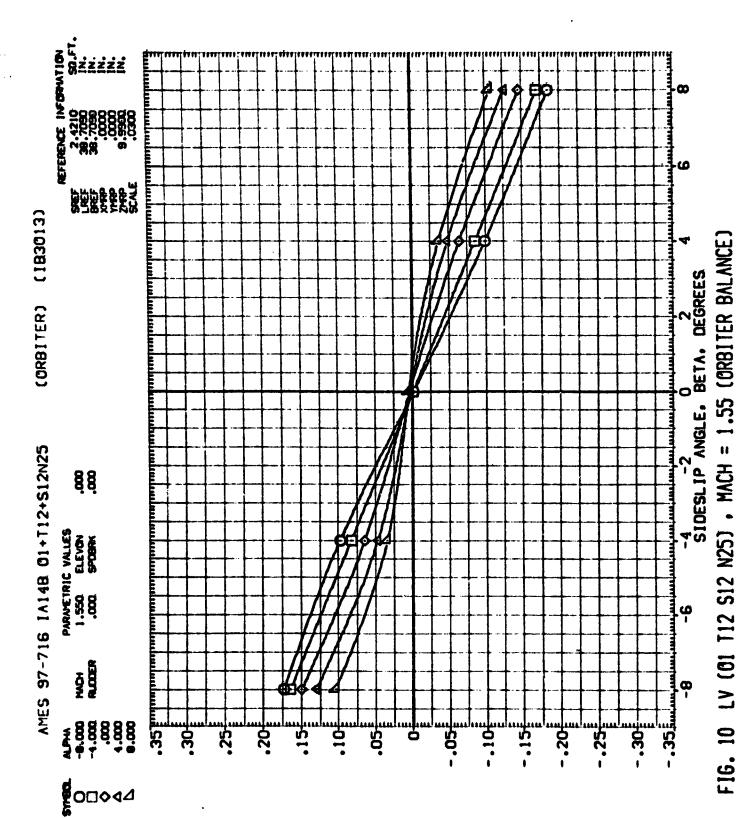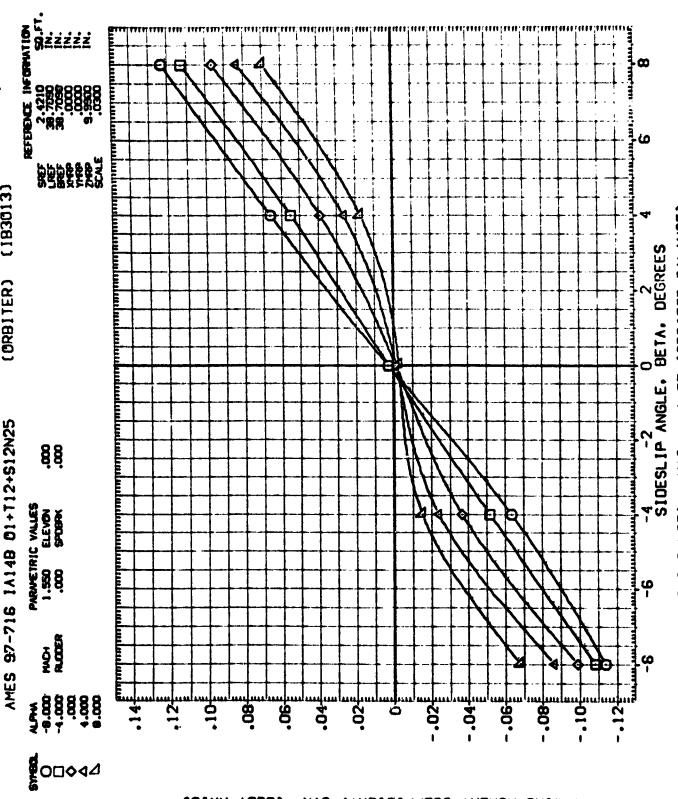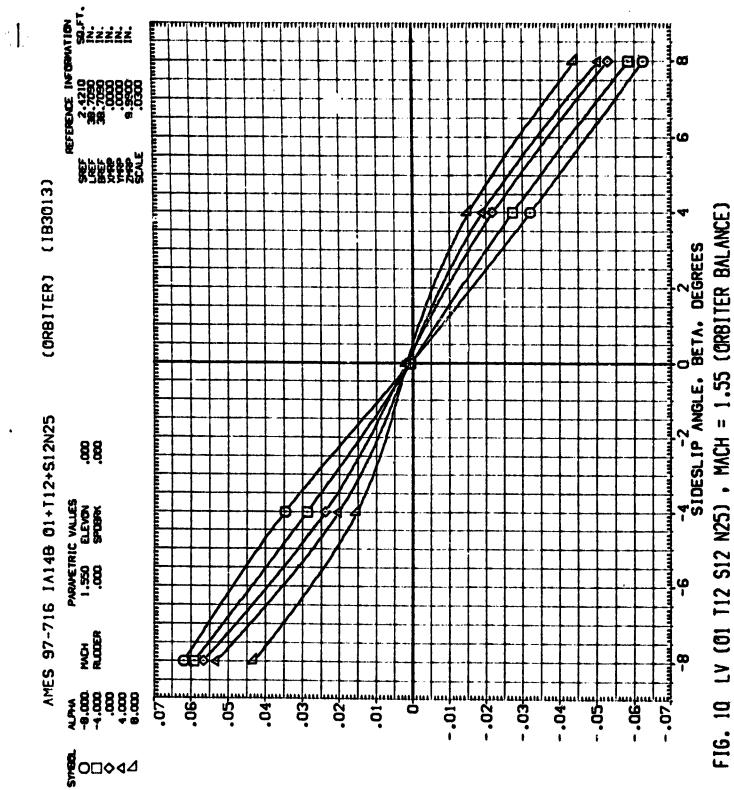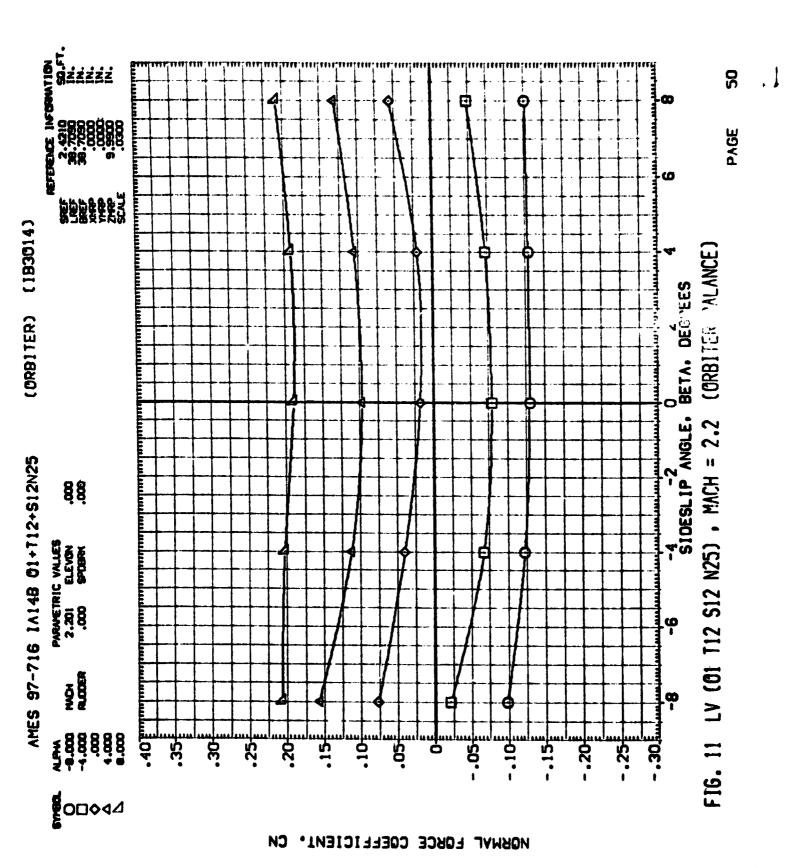
DATA FIGURES - PRESSURE

Note: Correspondence between parameter values and plot grids (multiple grids per page) - first parameter value is presented on left hand grid.

ARC97-716 IA14 O1+T12+S12N25+AT1: ORB. FUSELAGE (RB3B12)

SYMBOL	PHI	BETA0	ALPHA0
O	.000	-7.980	-7.980
□	20.000	-4.070	
◇	40.000		
△	55.000		

	MACH	PARAMETRIC VALUES	
		2.200	ELEVON
	RUDDER	.000	SPDBRK

.000
.000

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

PAGE 1

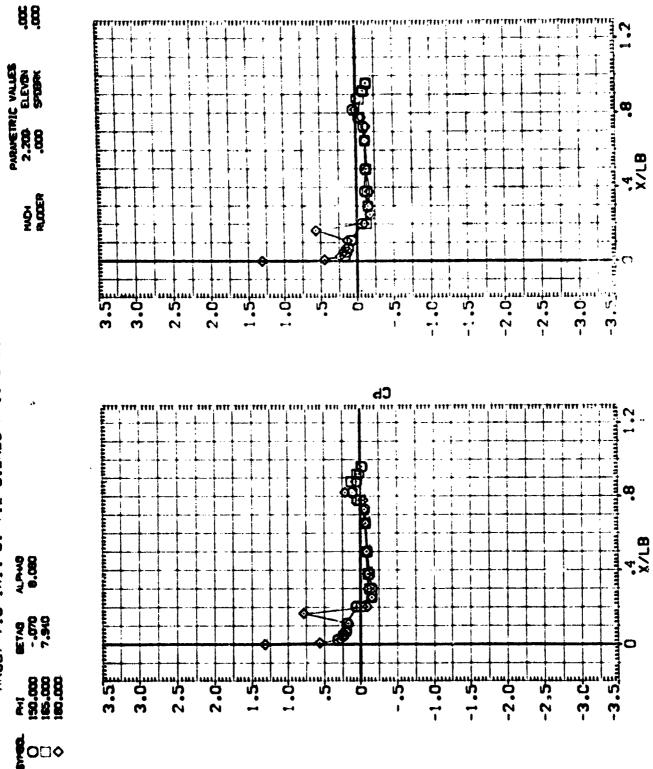ARC97-716 IA14 O1+T12+S12N25+A∵:: ORB. FUSELAGE (RB3B12)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

PAGE   2

ARC97-716 IA14 O1+T12+S12N25+AT11 ORB. FUSELAGE (RB3B12)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

PAGE   3

ARC97-716 IA14 O1+T12+S12N25+A11 ORB. FUSELAGE (RB3B12)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

PAGE 4

ARC97-7:6 IA14 O1+T12+S12N25+AT:: ORB. FUSELAGE (RB3B12)

PARAMETRIC VALUES

			PARAMETRIC VALUES	
		MACH	2.200	ELEVON
		RUDDER	.000	SPDBRK

SYMBOL	PHI	BETA	ALPHA
○	70.000	-.050	-7.980
□	90.000	7.980	
◇	120.000		
△	135.000		

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

PAGE   5

ARC97-716 !A14 O1+T12+S12∿25+A?!: ORB. FUSELAGE (RB3B12)

SYMBOL   PHI   BETAG   ALPHAG
  ○   150.000   -.050   -7.980
  □   165.000   7.980
  ◇   180.000

                                          PARAMETRIC VALUES
                              MACH   2.200   ELEVON   .000
                              RUDDER   .000   SPDBRK   .000

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

PAGE   6

ARC97-7;6 !A14 0!+T!2+S!2^25+A^;; ORB. FUSE_AGE (RB3B!2)

SYMBOL   PHI   BETA0   ALPHA0
O   .000   -7.. 0   -4.000
□   20.000   -3.. 0
◇   40.000
△   55.000

CP

X/LB

CP

X/LB

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ORB. FUSELAGE (RB3B12)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

PAGE   8

ARC97-716 IA14 O1+T12+S12N25+A*:: ORB. FUSELAGE (RB3B12)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

PAGE   9

ARC97-716 IA14 O1+T12+S12\25+A1:: ORB. FUSELAGE (RB3B12)

PARAMETRIC VALUES

MACH   2.200   ELEVON   .000
RUDDER   .000   SPDBRK   .000

BETAO   ALPHAB
PHI   -.050   -4.040
.000
20.000   7.950
40.000
55.000

SYMBOL
O □ ◇ △

CP

X/LB

CP

X/LB

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

PAGE   10

ARC97-716 IA14 O1+T12+S12N25+A⁻11 ORB. FUSELAGE (RB3B12)

PARAMETRIC VALUES

	PHI	BETAO	ALPHAO	
SYMBOL	70.000	-.060	-4.040	
	90.000	7.860		
	120.000			
	135.000			

MACH   2.200   ELEVON   .000
RUDDER   .000   SPDBRK   .000

CP

X/LB

CP

X/LB

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

PAGE   11

ARC97-716 IA14 O1+T12+S12N25+AT11 ORB. FUSELAGE (RB3B12)

PARAMETRIC VALUES
MACH   2.200   ELEVON   .000
RUDDER   .000   SPDBRK   .000

.000
.000

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+AT11 ORB. FUSELAGE (RB3B12)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ORB. FUSELAGE (RB3B12)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

PAGE   14

ARC97-716 IA14 O1+T12+S12N25+A711 ORB. FUSELAGE (RB3B12)

CP

CP

X/LB

X/LB

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ORB. FUSELAGE (RB3B12)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

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LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

PAGE 17

ARC97-716 IA14 O1+T12+S12N25+AT11 ORB. FUSELAGE (RB3B12)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

ARC97-716 !A14 O1+":2+S12N25+A":! ORB. FUSELAGE (RB3B12)

PARAMETRIC VALUES

SYMBOL	PHI	BETAO	ALPHAO	MACH	2.200	ELEVON	.000
○	.000	-8.070	8.050	RUDDER	.000	SPDBRK	.000
□	20.000	-4.000					
◇	40.000						
△	55.000						

CP

X/LB

CP

X/LB

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+A711 ORB. FUSELAGE (RB3B12)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

PAGE   20

ARC97-716 :A14 O1+T12+S12.25+A11 ORB. FUSELAGE (RB3B12)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

ARC97-716 IA14 O1+T12+S12N25+A11: ORB. FUSELAGE (RB3B12)

CP

CP

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

PAGE   22

ARC97-716 !A14 Q1+T12+S12N25+A†!! ORB. FUSELAGE (RB3B12)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

PAGE   23

ARC97-716 IA14 O1+T12+S12N25+AT11 ORB. FUSELAGE (RB3B12)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

PAGE   24

ARC97-716 IA14 O1+T12+S:2N25   ORB. FUSELAGE (RB3B13)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

PAGE   25

ARC97-716 IA14 O1+T12+S12N25   ORB. FUSELAGE (RB3B13)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

ORB. FUSELAGE (RB3B13)

ARC97-716 !A14 O!+T!2+S!2N25

PARAMETRIC VALUES

MACH   1.550   ELEVON   .000
RUDDER   .000   SPDBRK   .000
                              .000

SYMBOL   PHI   BETAO   ALPHAS
  O   150.000   -8.030   -7.930
  □   165.000   -3.710
  ◇   180.000

CP

X/LB

.4   .8   1.2

3.5 3.0 2.5 2.0 1.5 1.0 .5 0 -.5 -1.0 -1.5 -2.0 -2.5 -3.0 -3.5

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

ARC97-716 IA14 O1+T12+S12N25   ORB. FUSELAGE (RB3B13)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

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ARC97-716 IA14 O1+T12+S12N25   ORB. FUSELAGE (RB3B13)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

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LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

ARC97-716 !A14 0!+':2+S!2\25   ORB. FUSELAGE (RB3B13)

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LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

ARC97-716 IA14 O1+T12+S12N25   CRB. FUSELAGE (RB3B13)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

ORB. FUSELAGE (RB3B13)

ARC97-716 IA14 O1+Y12+S12N25

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ARC97-716 IA14 O1+T12+S12∿25

ORB. FUSELAGE (RB3B13)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

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LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

ARC97-7:6 :A:4 0:+':2+S:2N25   ORB. FUSELAGE (RB3B13)

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PAGE   37

ARC97-716 IA14 O!+T!2+S12N25   CRB. FUSELAGE (RB3B13)

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRE URS

PAGE   38

ARC97-716 IM14 OI+T12+S12N25

ORB. FUSELAGE (RB3B13)

SYMBOL	PHI	BETAQ	ALPHAO
◯	150.000	-8.000	-.150
□	165.000		-3.950
◇	180.000		

PARAMETRIC VALUES

MACH	1.550	ELEVON .000
RUDDER	.000	SPDBRK .000

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

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LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

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LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

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ARC97-716 IA14 O1+T12+S12N25   CRB. FUSELAGE (RB3B13)

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LONGITUDINAL DISTRIBUTION OF ORBITER FUSELAGE PRESSURES

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PAGE 13

ARC97-716 TA14 O1+T12+S12N25+AT11 EXTERNAL TANK (RB3T12)

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+AT1: EXTERNAL TANK (RB3T12)

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURE
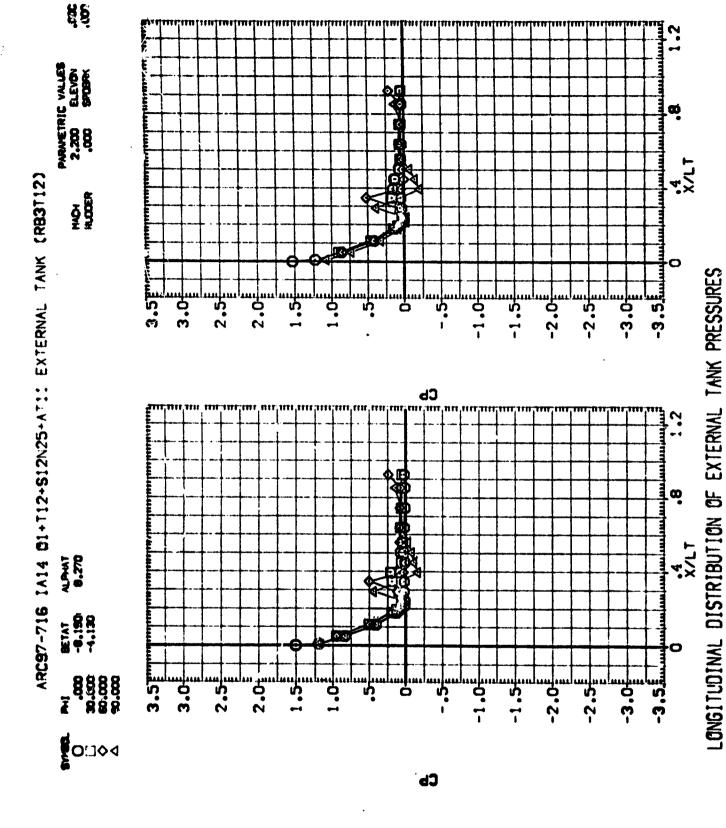
ARC97-716 IA14 O1+T12+S12N25+AT11 EXTERNAL TANK (RB3T12)

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PAGE 5:

ARC97-716 IA14 O!+T12+S12N25+A7!! EXTERNAL TANK (RB3T12)

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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ARC97-716 IA14 01+T12+S12N25+A'11 EXTERNAL TANK (RB3T12)

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+AT11 EXTERNAL TANK (R83T12)

CP

CP

X/LT

X/LT

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PAGE   54

ARC97-716 IA14 O1+T12+S12N25+1T11 EXTERNAL TANK (RB3T12)

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+AT11 EXTERNAL TANK (RB3T12)

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PAGE 56

ARC97-716 IA14 O1+T12+S12N25+AT1: EXTERNAL TANK (RB3T12)

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+AT11 EXTERNAL TANK (RB3T12)

SYMBOL
○ □ ◇ △

CP

CP

X/LT

X/LT

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PAGE   58

ARC97-716 IA14 O!+TI2+SI2N25+A'1! EXTERNAL TANK (RB3T12)

SYMBOL	PHI	BETAT	ALPHAT
◯	120.000	-.030	-4.250
☐	135.000	7.980	
◇	150.000		
◁	165.000		

	PARAMETRIC VALUES	
		ELEVON
MACH	2.200	.000
RUDDER	.000	SPDBRK

.000
.000

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 EXTERNAL TANK (RB3T12)

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

ARC97-716 !A14 01+T12+S12N25+AT11 EXTERNAL TANK (RB3T!2)

SYMBOL	PHI	BETAT	ALPHAT
O	.000	-8.050	-.310
□	30.000	-4.050	
◇	60.000		
△	90.000		

	PARAMETRIC VALUES	
	MACH	ELEVON
MACH	2.200	.000
RUDDER	.000	SPDBRK
	.000	.000

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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ARC97-716 IA14 01+T12+S12N25+AT:: EXTERNAL TANK (RB3T12)

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

ARC97-716 IA14 O1+T:2+S:2+S:2N25+AT:: EXTERNAL TANK (RB3T12)

SYMBOL   PHI   BETAT   ALPHAT
O   180.000   -6.050   -.310
□   270.000   -4.060

PARAMETRIC VALUES
MACH   2.200   ELEVON   .000
RUDDER   .000   SPDBRK   .000

CP

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+A7I! EXTERNAL TANK (RB3T12)

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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ARC97-716 IA14 O1+T12+S12+25+A7!! EXTERNAL TANK (RB3T12)

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+AT11 EXTERNAL TANK (RB3T12)

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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C-3

ARC97-716 IA14 O1+T12+S12N25+AT:1 EXTERNAL TANK (RB3T12)

SYMBOL	PHI	BETAT	ALPHAT
○	120.000	-8.150	8.270
□	135.000	-4.130	
◇	150.000		
△	165.000		

	PARAMETRIC VALUES	
MACH	2.200	ELEVON .000
RUDDER	.000	SPDBRK .000

CP

X/LT

CP

X/LT

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+AT11 EXTERNAL TANK (RB3T12)

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

ARC97-716 IA14 01+T12+S12N25+AT11 EXTERNAL TANK (RB3T12)

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESS... ES

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ARC97-716 IA14 O1+T12+S12N25+AT11 EXTERNAL TANK (RB3T12)

PARAMETRIC VALUES

MACH	2.200	ELEVON .000
RUDDER	.000	SPDBRK .000

SYMBOL	PHI	BETAT	ALPHAT
○	120.000	-.040	8.270
□	135.000	6.110	
◇	150.000		
△	165.000		

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

ARC97-716 IA14 O1+T12+S12N25+ATI1 EXTERNAL TANK (RB3T12)

SYMBOL   PHI   BETAT   ALPHAT
O   180.000 -.040   8.270
[]   270.000   8.110

PARAMETRIC VALUES
MACH   2.200   ELEVON   .000
RUDDER   .000   SPDBRK   .000

CP

CP

X/LT

X/LT

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T!2+S12N25

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EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T12+S12N25

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T12+S12N25

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EXTERNAL TANK (RB3T(3))

ARC97-716 IA14 O1+T12+S12N25

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EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T12+S12N25

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T12+S12N25

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T12+S12N25

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EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T12+S12N25

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PAGE   80

EXTERNAL TANK (RB3T13)

ARC97-716 TA14 O1+T12+S12N25

CP

CP

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T12+S12N25

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EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T12+S12N25

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EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T12+S12N25

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T12+S12N25

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T12+S12N25

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T12+S12N25

SYMBOL	PHI	BETAT	ALPHAT
○	180.000	-8.050	-.310
□	270.000	-4.000	

PARAMETRIC VALUES

MACH	1.550	ELEVON	.000
RUDDER	.000	SPDBRK	.000

CP

CP

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T12+S12N25

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T12+S12N25

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

ARC97-716 IA14 O1+T12+S12N25

EXTERNAL TANK (RB3T13)

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EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T12+S12N25

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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EXTERNAL TANK (RB3T(3))

ARE97-716 IA14 O1+T12+S12N25

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T12+S12N25

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

EXTERNAL TANK (R33T13)

ARC97-716 IA14 O1+T12+S12N25

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PARAMETRIC VALUES

		ELEVON	
	MACH	1.550	.000
	RUDDER	.000	SPDBRK

ARC97-716 IA14 O1+T12+S12N25

SYMBOL	PHI	BETAT	ALPHAT
O	120.000	-.210	8.110
□	135.000	8.300	
◇	150.000		
△	165.000		

CP

X/LT

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

EXTERNAL TANK (RB3T13)

ARC97-716 IA14 O1+T12+S12N25

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 SRM BOOSTER   (RB3S12)

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+AT11 SRM BOOSTER   (RB3S12)

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

ARC97-716 [A14 O]+T12+S12N25+A?]] SRM BOOSTER   (RB3S12)

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

ARC97-716 IA14 O1+T12+S:2N25+AT11 SRM BOOSTER (R83S:2)

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ARC97-716 IA14 O1+T12+S12N25+AT11 SRM BOOSTER   (RB3S12)

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES
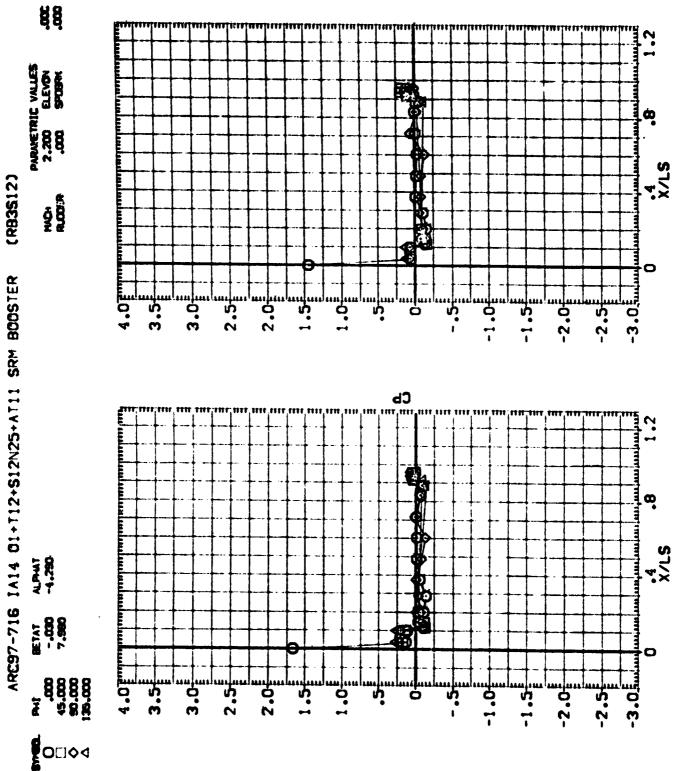
ARC97-716 IA14 Q1+T12+S12N25+AT11 SRM BOOSTER (RB3S12)

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 SRM BOOSTER   (RB3S12)

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ARC97-716 IA14 O1+T12+S12N25+AT11 SRM BOOSTER (RB3S12)

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

ARC97-716 IA14 O1+T12+S12N25+A'11 SRM BOOSTER (RB3S12)

SYMBOL	PHI	BETAT	ALPHAT
O	.000	-8.050	-.310
□	45.000	-1.080	
◇	90.000		
△	135.000		

	MACH	PARAMETRIC VALUES	ELEVON
	RUDDER	2.200	SPDBRK
		.000	
		.000	.000

CP

X/LS

CP

X/LS

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+AT11 SRM BOOSTER   (R83S12)

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES
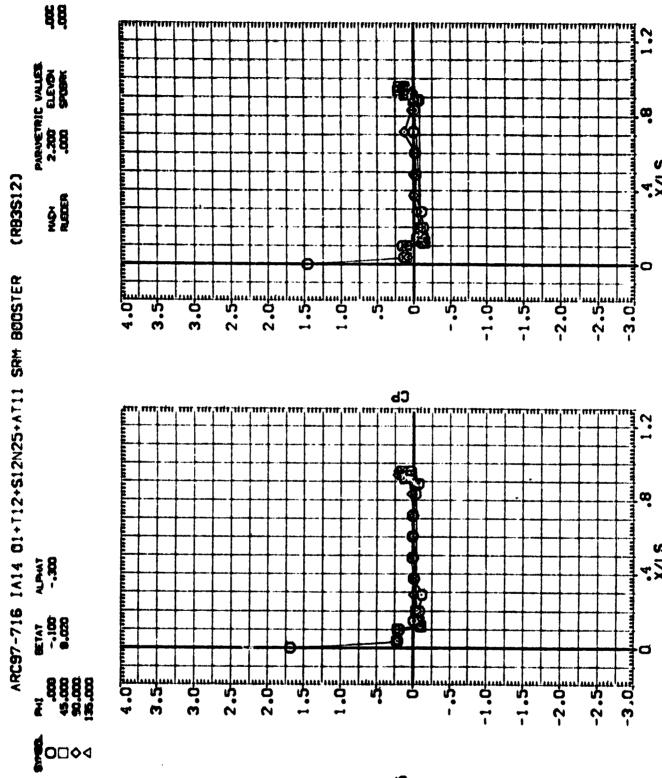
PAGE 106

ARC97-716 IA14 O1+T12+S12N25+AT11 SRM BOOSTER (RB3S12)

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+AT11 SRM BOOSTER   (RB3S12)

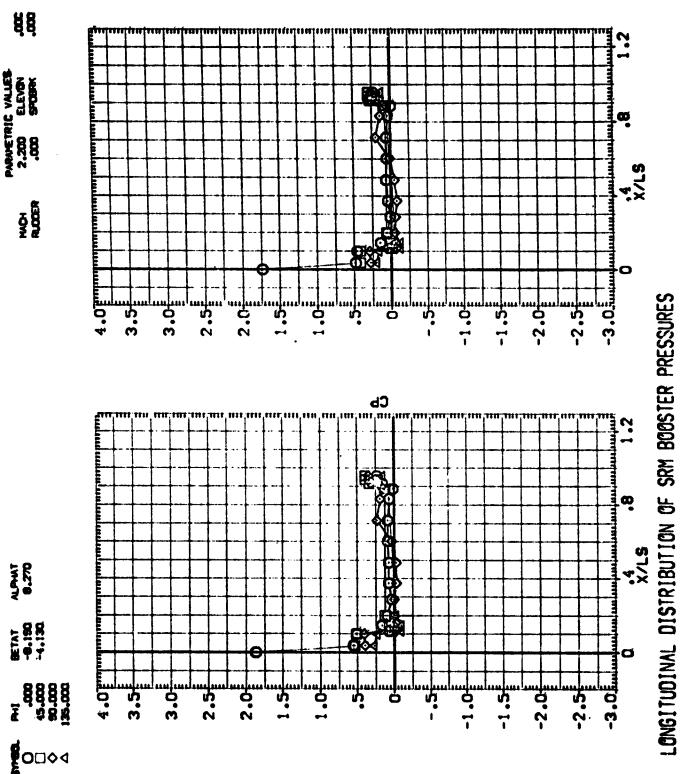LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+AT11 SRM BOOSTER   (RB3S12)

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 SRM BOOSTER (RB3S12)

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

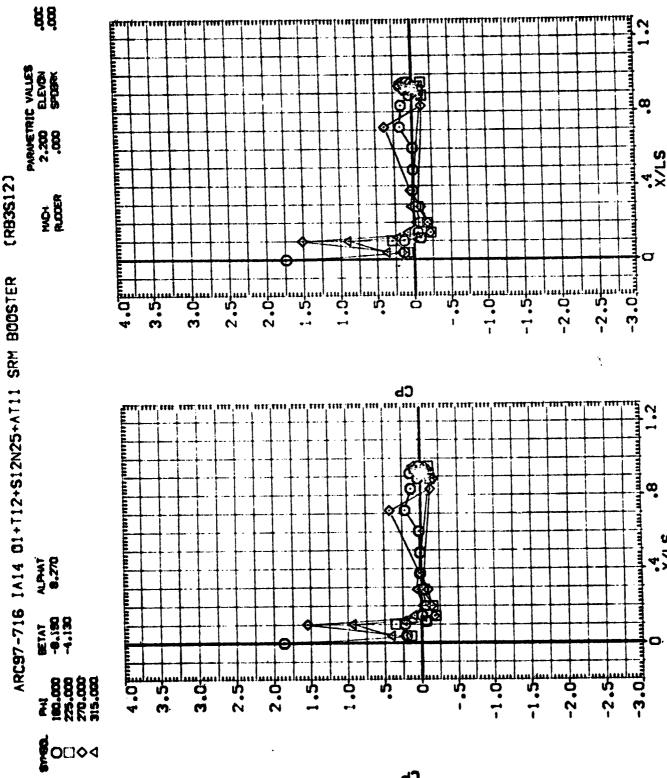PAGE 110

ARC97-716 IA14 O1+T12+S12N25+AT11 SRM BOOSTER (RB3S12)

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

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ARC97-716 IA14 O1+W12+S12N25+A111 SRM BOOSTER (NU3J1J)

PARAMETRIC VALUES

MACH	2.200	ELEVON	.000
RUDDER	.000	SPDBRK	.000

SYMBOL	PHI	BETAT	-.040	ALPHAT	8.270
○	180.000				8.110
□	225.000				
◇	270.000				
△	315.000				

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

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ARC97-716 IA14 O1+T12+S12N25   SRM BOOSTER   (RB3S13)

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

ARC97-716 IA14 O1+T12+S12N25

SRM BOOSTER (RB3S13)

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

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AGC97-716 IA14 O1+T12+S12N25   SRM BOOSTER (RB3S13)

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

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SRM BOOSTER (RB3S13)

ARC97-716 IA14 O1+T12+S12N25

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

ARC97-716 IA14 01+T12+S12N25

SRM BOOSTER   (RB3S13)

SYMBOL	PHI	BETAT	ALPHAT
○	.000	-8.000	-4.240
□	45.000		
◇	90.000		
△	135.000	-3.660	

PARAMETRIC VALUES

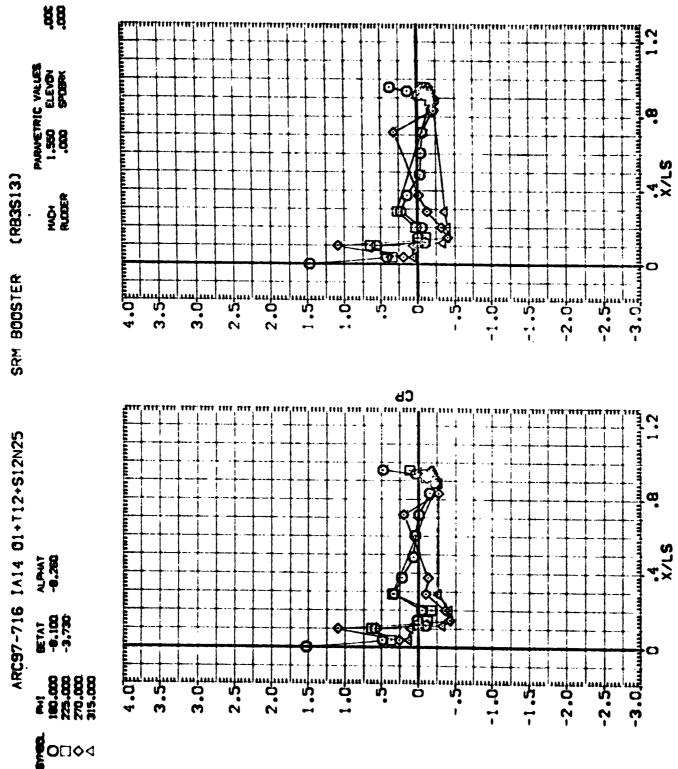| MACH	1.550	ELEVON	.000
RUDDER	.000	SPDBRK	.000

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

PAGE   117
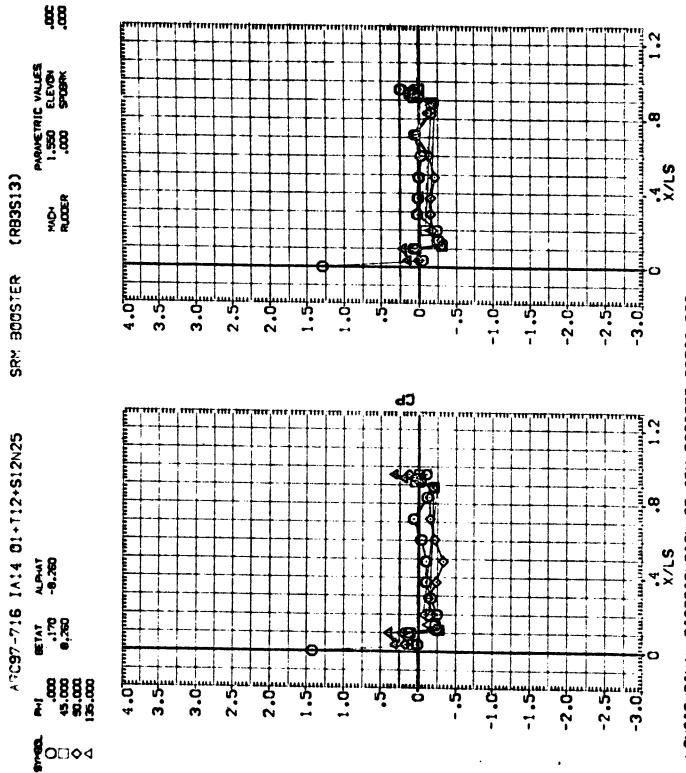
LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURE

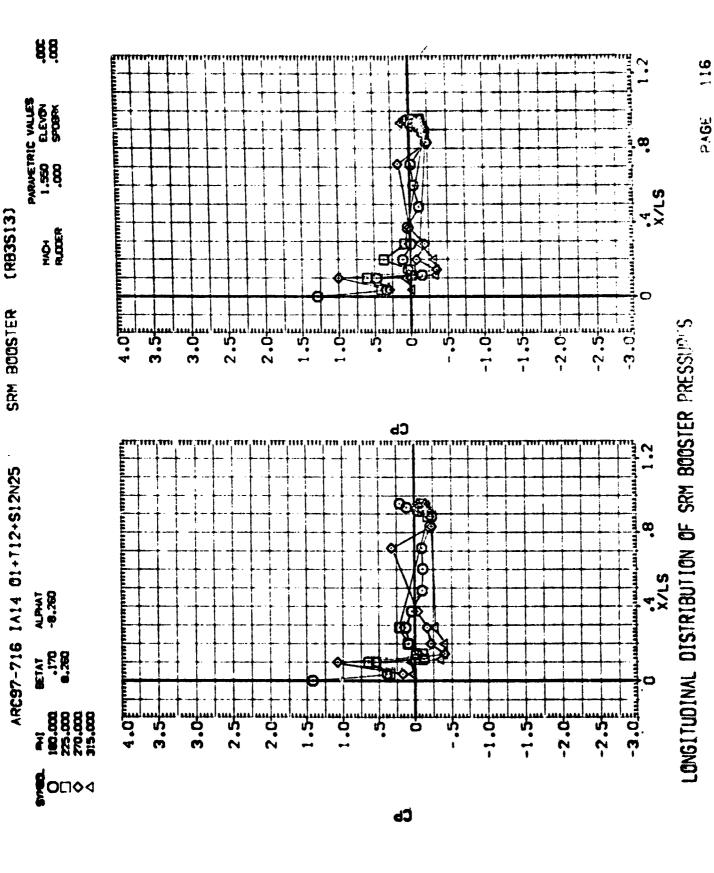PAGE 118

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

ARC97-716 IA14 01+T12+S12N25

SRM BOOSTER (RB3S13J)

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SRM BOOSTER (RB3513)

ARC97-716 IA14 O1+T12+S12N25

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ARC97-716 IA14 Q1+T12+S12N25

SRM BOOSTER (RB3S13)

LONGITUDINA. DISTRIBUTION OF SRM BOOSTER PRESSURES

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

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ARC97-716 IA14 O1+T12+S12N25   SRM BOOSTER   (RB3S13)

PARAMETRIC VALUES

MACH   1.550   ELEVON   .000
RUDDER   .000   SPDBRK   .000

SYMBOL   PHI   BETAT   ALPHAT
O   180.000   -.150   -.280
□   225.000   8.200
◇   270.000
△   315.000

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

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LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

ARC97-716 IA14 O1+T12+S12N25   SRV BOOSTER   (RB3S13)

PARAMETRIC VALUES

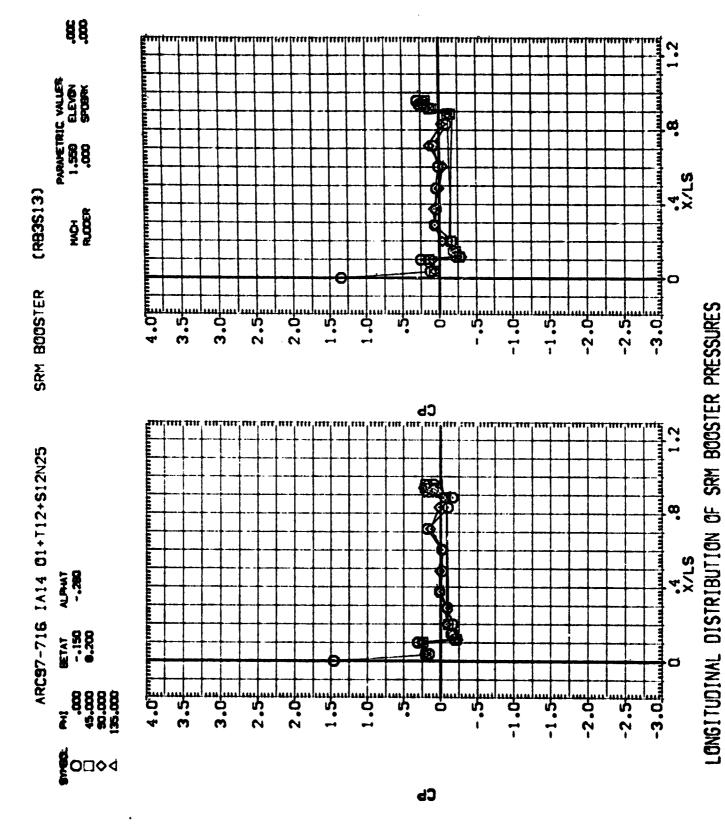| SYMBOL	PHI	BETAT	ALPHAT		MACH	1.550	ELEVON	.000
◯	.000	-.210	8.110		RUDDER	.000	SPDBRK	.000
□	45.000	8.300						
◇	90.000							
△	135.000							

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

LONGITUDINAL DISTRIBUTION OF SRM BOOSTER PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

X/CW

PARAMETRIC VALUES

MACH   2.200   ELEVON   .000
RUDDER   .000   SPDBRK   .000

SYMBOL   ALPHA   Y/BV   BETA
  O   8.050   .887   -7.980

DATA SET   SYMBOL   CONFIGURATION DESCRIPTION
                    ARC97-718 [A14 B1+T12+B1Z2+AT]] UPPER WING
                    ARC97-718 [A14 B1+T15+B1Z2+AT]] LOWER WING

CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

PARAMETRIC VALUES

MACH 2.200 ELEVON .000
RUDDER .000 SPDBRK .000

STMBOL ALPHAB Y/BW BETAB
O 8.050 .987 -.050

DATA SET SYMBOL CONFIGURATION DESCRIPTION
[REQU12] OPEN ARC97-716 IA14 O1+T12+S12+2CS+AT11 UPPER WING
[REE.12] FLAGGED ARC97-716 IA14 O1+T12+S12+2CS+AT11 LOWER WING

CP

1.4
1.2
1.0
.8
.6
.4
.2
0
-.2
-.4
-.6
-.8
-1.0
-1.2
-1.4

0   .4   .8   1.2
X/CW

CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

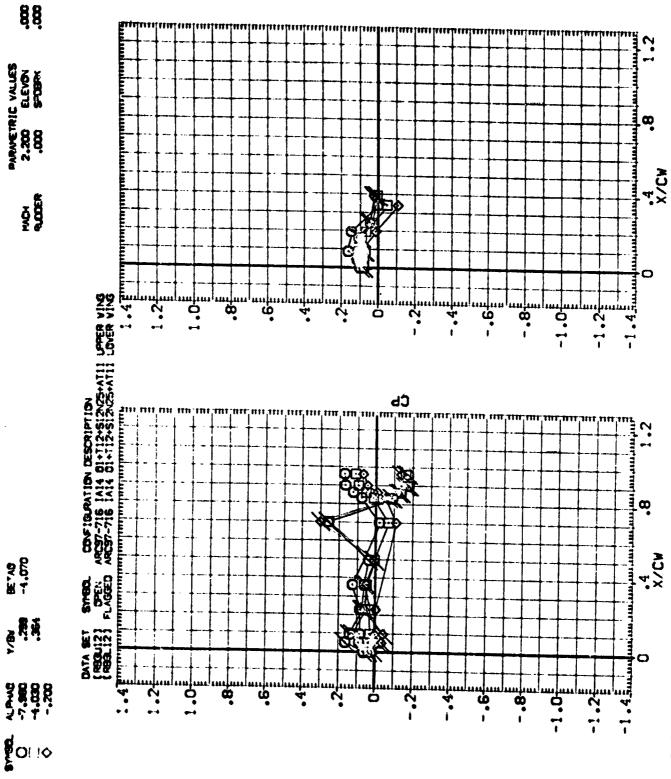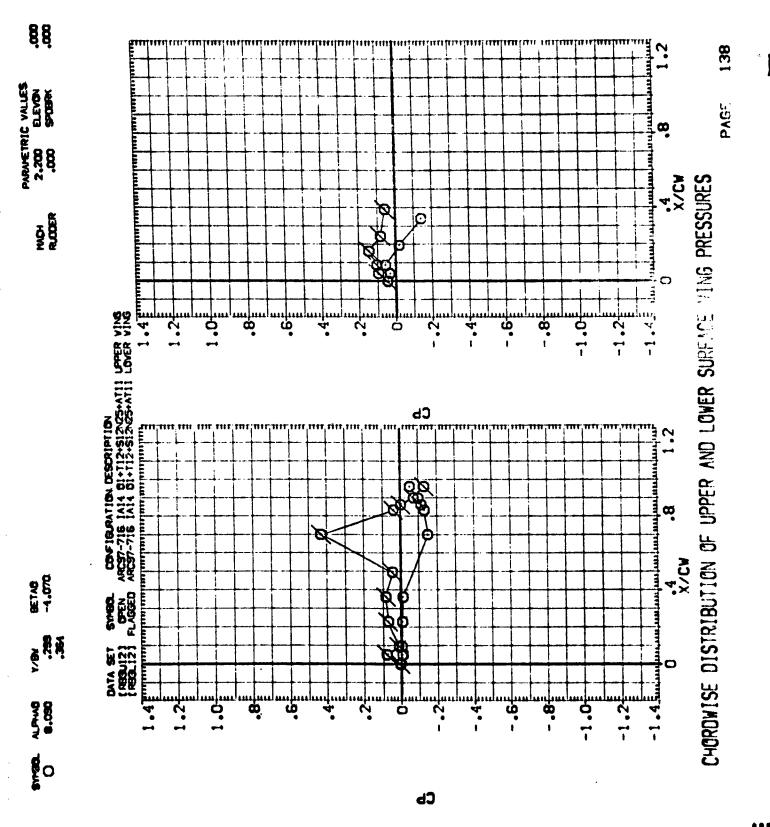CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES
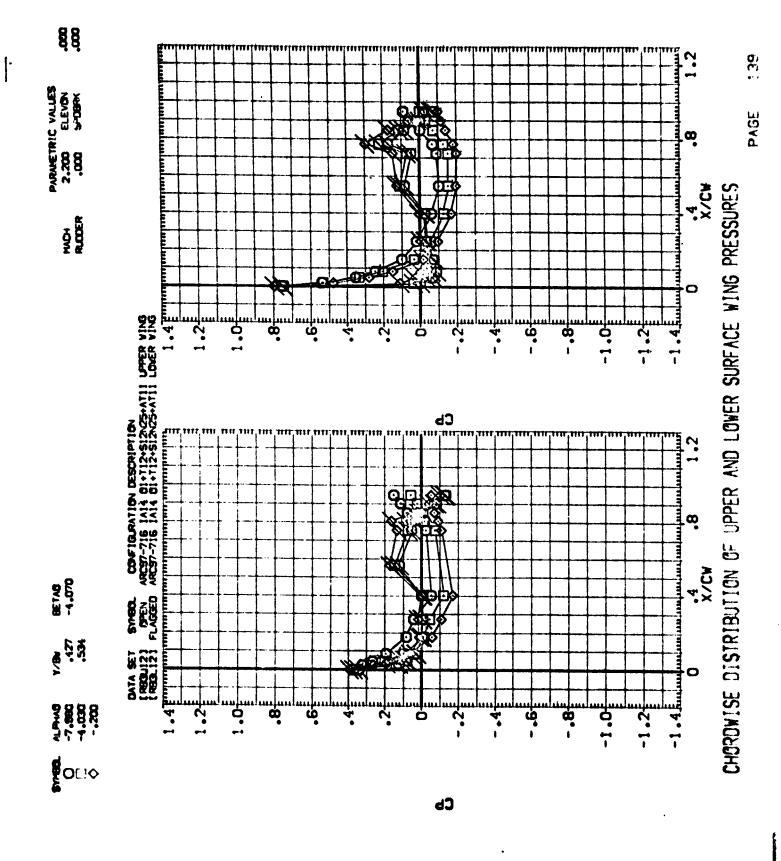
CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE ... G PRESSURES

CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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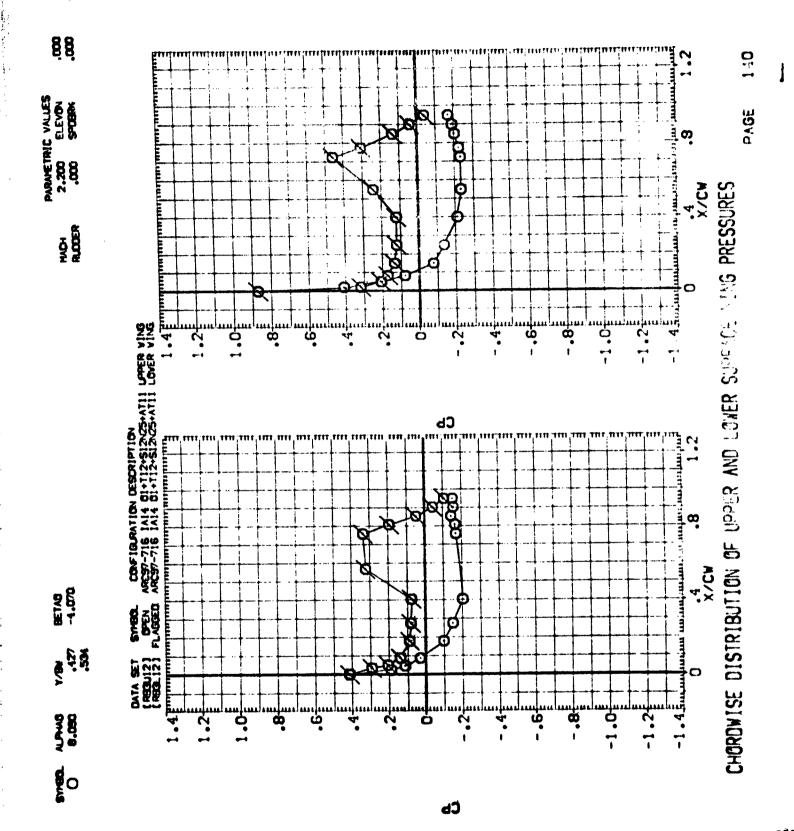CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

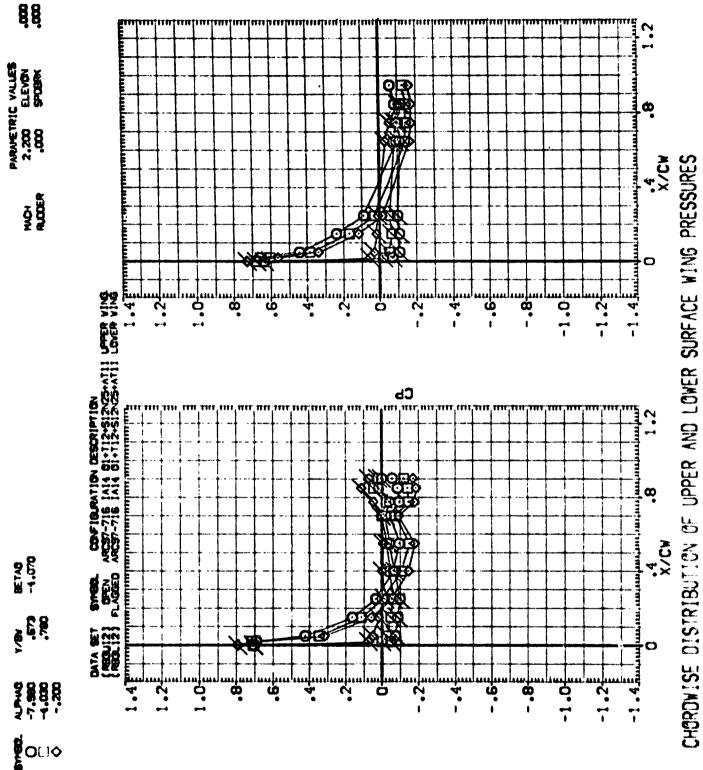PAGE   160

CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE PRESS. SES

CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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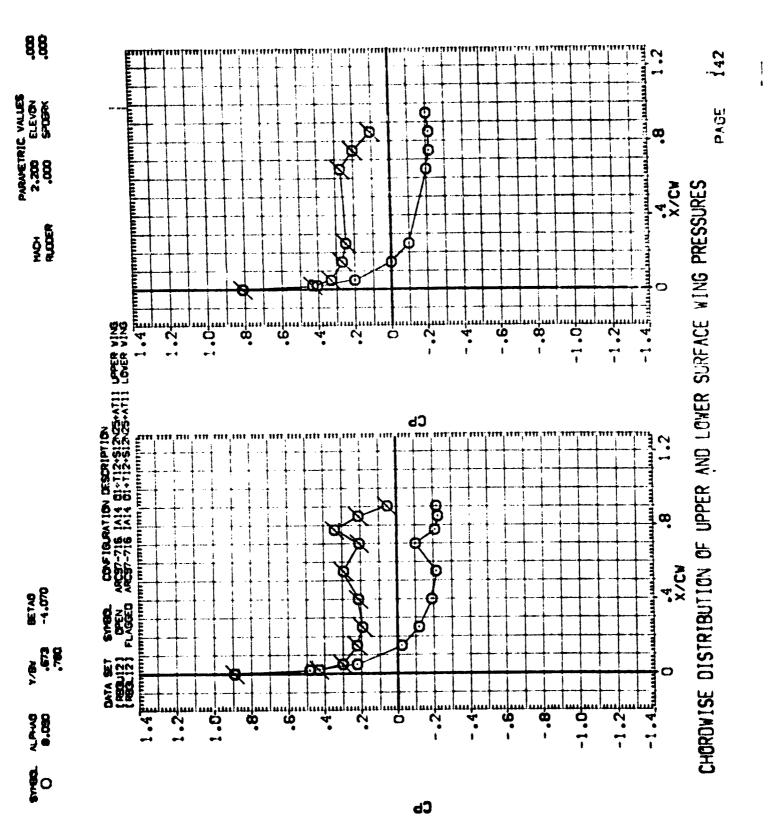CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES
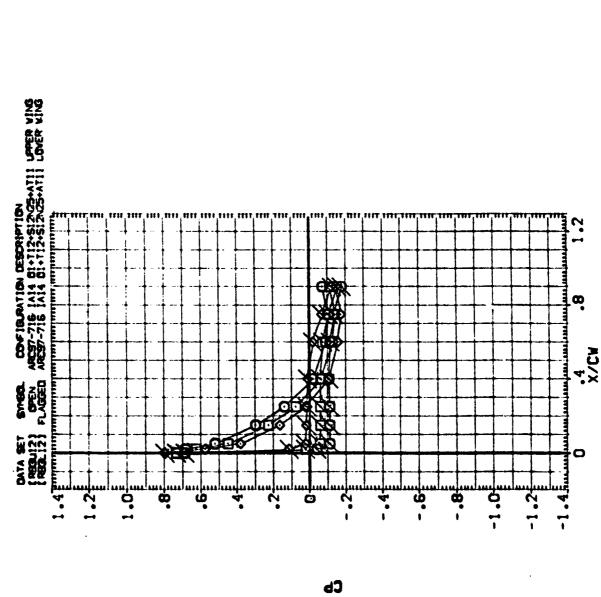
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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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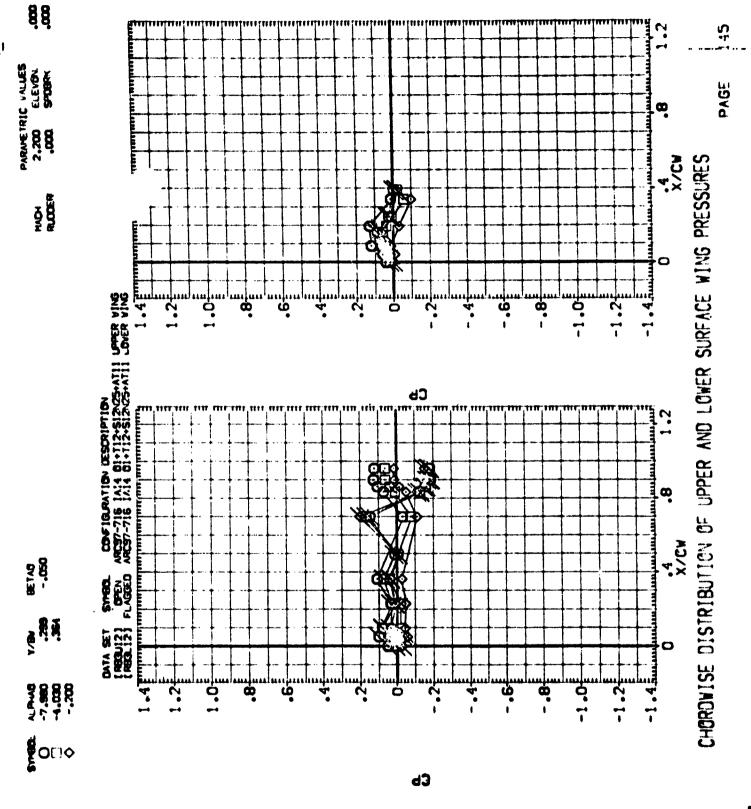
CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES
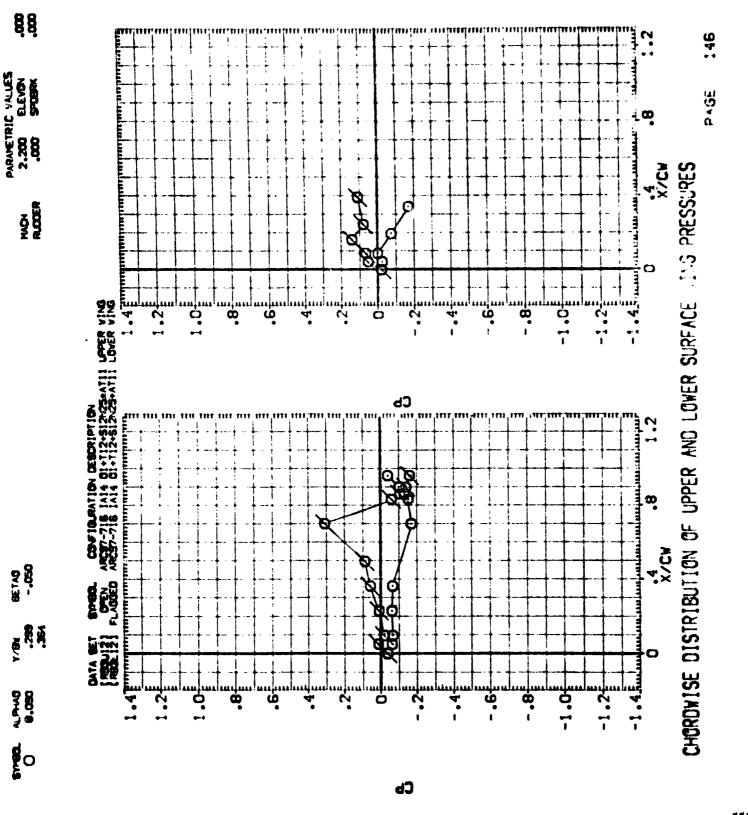
CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

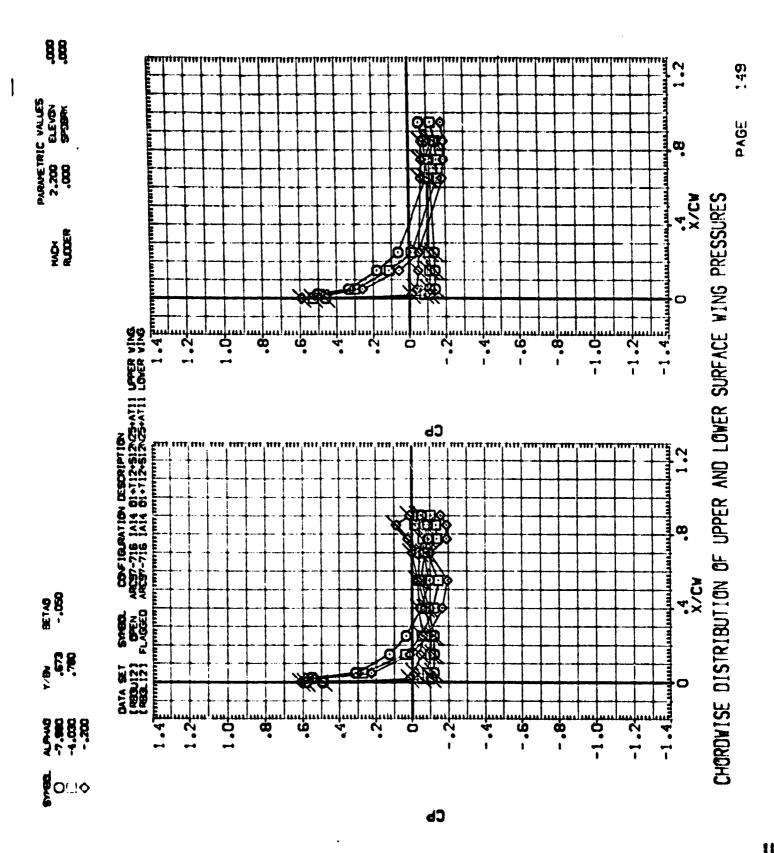PAGE   179

DATA SET   SYMBOL   CONFIGURATION DESCRIPTION
(RGU133)   OPEN   ARC97-716 1A14 B1+T12+S12+C25
(RGL133)   FLAGGED ARC97-716 1A14 B1+T12+S12+C25

UPPER WING
LOWER WING

MACH·   PARAMETRIC VALUES
RUDDER   1.550   ELEVON   .000
             .000   SPDBRK   .008

CP

X/CW

CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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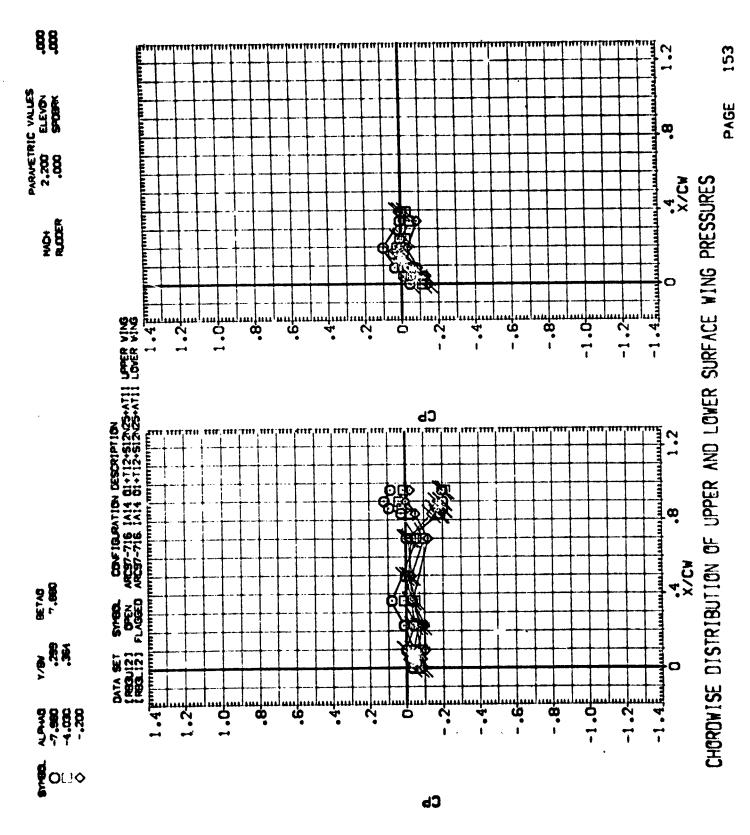
CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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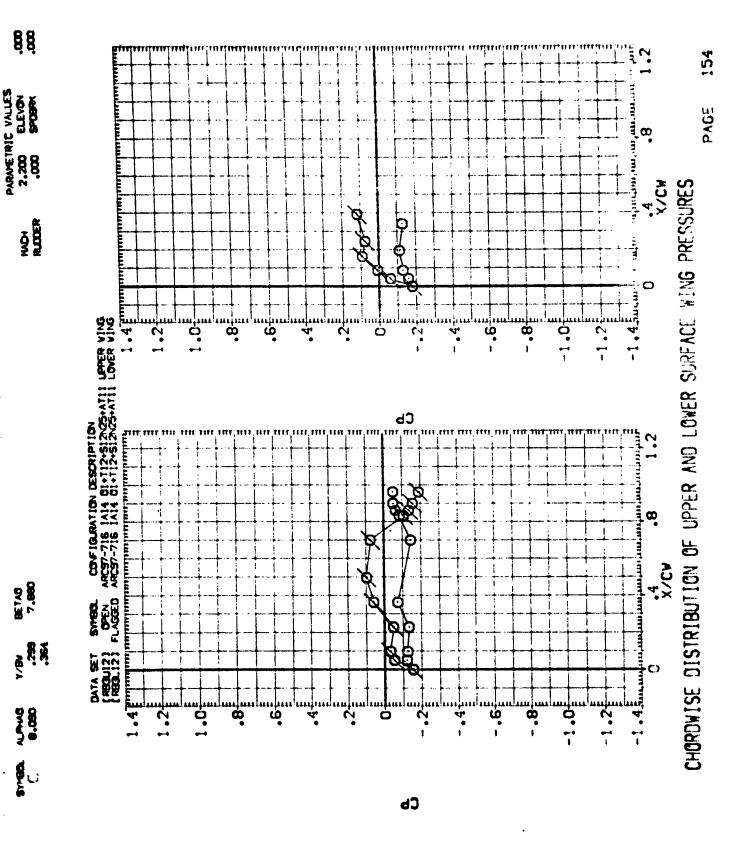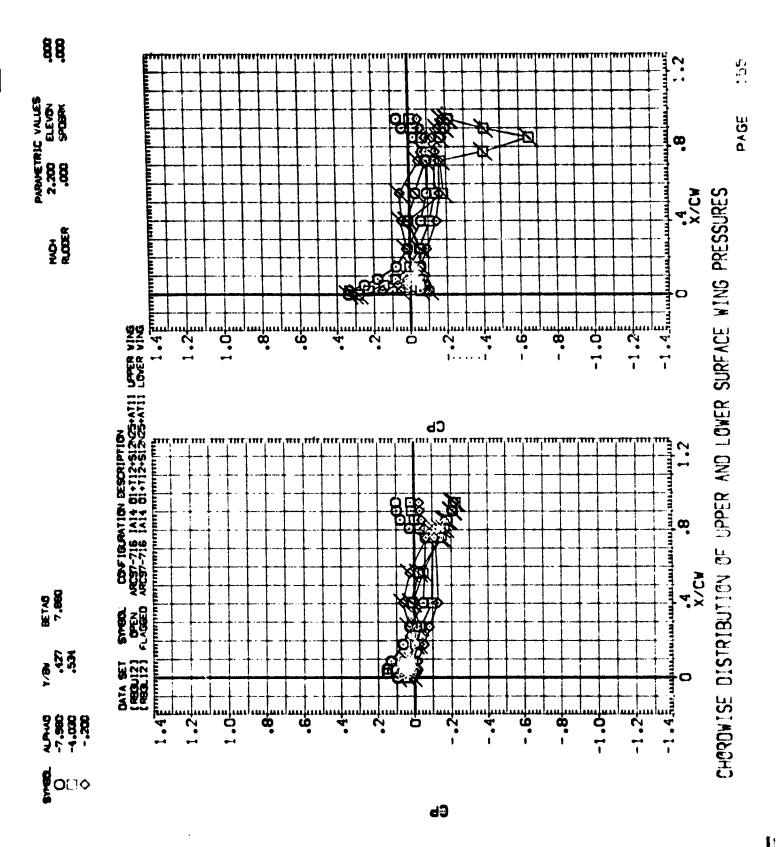
CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

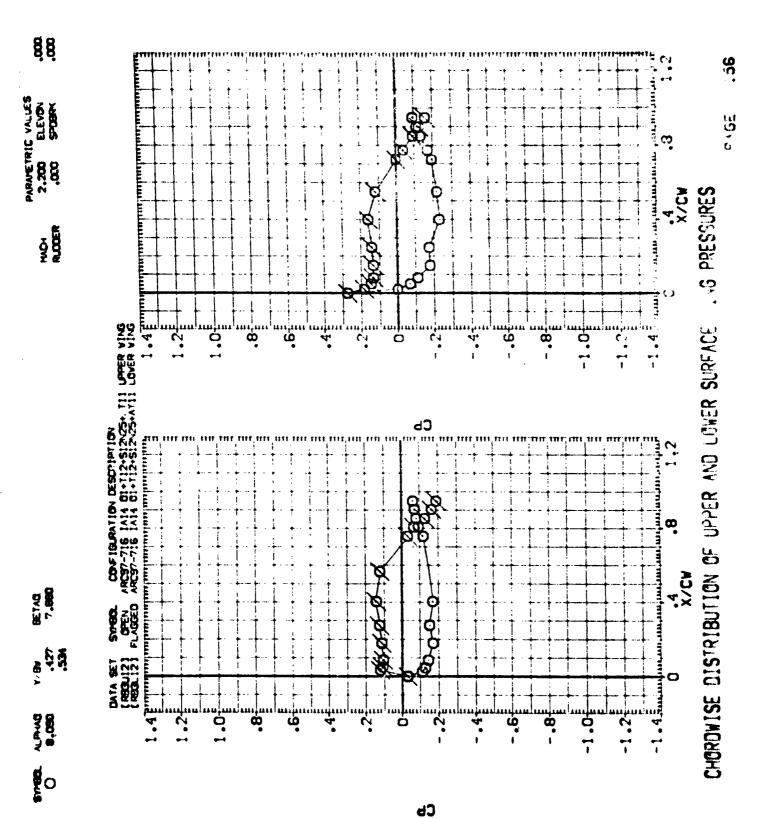CHORDWISE DISTRIBUTION OF UPPER AND LOWER SURFACE WING PRESSURES

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CHORDWISE DISTRIBUTION OF LEFT AND RIGHT SURFACE VERTICAL TAIL PRESSURES

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CHORDWISE DISTRIBUTION OF LEFT AND RIGHT SURFACE VERTICAL TAIL PRESSURES

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CHORDWISE DISTRIBUTION OF LEFT AND RIGHT SURFACE VERTICAL TAIL PRESSURES

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CHORDWISE DISTRIBUTION OF LEFT AND RIGHT SURFACE VERTICAL TAIL PRESSURES

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CHORDWISE DISTRIBUTION OF LEFT AND RIGHT SURFACE VERTICAL TAIL PRESSURES

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CHORDWISE DISTRIBUTION OF LEFT AND RIGHT SURFACE VERTICAL TAIL PRESSURES

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CHORDWISE DISTRIBUTION OF LEFT AND RIGHT SURFACE VERTICAL TAIL PRESSURES

PARAMETRIC VALUES

MACH   2.200   ELEVON   .000
RUDDER   .000   SPDBRK   .000

SYMBOL   ALPHA   Z/BV   BETA
  O   8.050   .158   -.050
                    .316

DATA SET   SYMBOL   CONFIGURATION DESCRIPTION
(REGV123)   OPEN   ARC97-716 IA14 O1+T12+S12+C25+A711 LEFT VERTICAL
(REGR123)   FLAGGED   ARC97-716 IA14 O1+T12+S12+C25+A711 RIGHT VERTICAL

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CHORDWISE DISTRIBUTION OF LEFT AND RIGHT SURFACE VERTICAL TAIL PRESSURES

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CHORDWISE DISTRIBUTION OF LEFT AND RIGHT SURFACE VERTICAL TAIL PRESSURES

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CHORDWISE DISTRIBUTION OF LEFT AND RIGHT SURFACE VERTICAL TAIL PRESSURES

PARAMETRIC VALUES

MACH
RUDDER

1.550 ELEVON
.000 SPDBRK

.000
.000

SYMBOL ALPHA Z/BV BETA
  O   8.040 .625 -8.030

LEFT VERTICAL
RIGHT VERTICAL

DATA SET SYMBOL CONFIGURATION DESCRIPTION
[RBN13]   OPEN   ARC97-716 IA14 O1+T12+S12N25
[RBR13]   FLAGGED ARC97-716 IA14 O1+T12+S12N25

CP

1.6
1.4
1.2
1.0
.8
.6
.4
.2
0
-.2
-.4
-.6
-.8
-1.0
-1.2

0   .4   .8   1.2
X/CV

CHORDWISE DISTRIBUTION OF LEFT AND RIGHT SURFACE VERTICAL TAIL PRESSURES
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CHORDWISE DISTRIBUTION OF LEFT AND RIGHT SURFACE VERTICAL TAIL PRESSURES

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CHORDWISE DISTRIBUTION OF LEFT AND RIGHT SURFACE VERTICAL TAIL PRESSURES

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CHORDWISE DISTRIBUTION OF LEFT AND RIGHT SURFACE OF VERTICAL TAIL PRESSURES

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CHORDWISE DISTRIBUTION OF LEFT AND RIGHT SURFACE VERTICAL TAIL PRESSURES

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CHORDWISE DISTRIBUTION OF LEFT AND RIGHT SURFACE VERTICAL TAIL PRESSURES

ARC97-716 IA14 O1+T12+S12\25+A'1: FUS+RUDF. BASE (RB3C12)

ORBITER BASE PRESSURES

ARC97-716 IA14 O1+T:2+S12N25+A7!! F:S+RUDF: BASE (RB3C12)

PARAMETRIC VALUES

MACH   2.200   ELEVON
RL   .000   SPDBRK

ALPHAB -4.000

ORBITER BASE PRESSURES

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PRESSURE COEFFICIENT, CP

BETAO

ARC97-716 !A!4 O!+T12+S12N25+A!:: FJS+RUD=L BASE (RB3C12)

PARAMETRIC VALUES
MACH   2.200   ELEVON
RUDDER   .000   SPDBRK

ALPHA5   .000   -.200

SYMBOL TAP NO
   O   1.000
   □   2.000
   ◇   3.000
   △   4.000
   △   5.000

BETAO

PRESSURE COEFFICIENT, CP

ORBITER BASE PRESSURES

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ARC97-716 IA14 01+T12+S12N25+AT11 FUS+RUDFL BASE (RB3C12)

ORBITER BASE PRESSURES

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FUS+RUDFL BASE (RB3C13)

ARC97-716 IA14 O1+T12+S12N25

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ORBITER BASE PRESSURES

ARC97-716 IA14 O1+T12+S12N25   FUS+RUDFL BASE (RB3C13)

PRESSURE COEFFICIENT, CP

ORBITER BASE PRESSURES

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ARC97-716 IA14 O1+T12+S12N25   FUS+RUDFL BASE (RB3C13)

PARAMETRIC VALUES

MACH   1.550   ELEVON   .000
RUDDER   .000   SPDBRK   .000

ALPHAS   -.150

TAP NO
1.000
2.000
3.000
4.000
5.000

PRESSURE COEFFICIENT, CP

BETAO

ORBITER BASE PRESSURES

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ARC97-716 IA14 O1+T12+S12N25   FUS+RUDFL BASE(RB3C13)

PARAMETRIC VALUES
MACH   1.550   ELEVON   .000
RUDDER   .000   SPDBRK   .000

ALPHAS
.000   8.040

SYMBOL   TAP NO
O   1.000
[]   2.000
<>   3.000
/\   4.000
/   5.000

PRESSURE COEFFICIENT, CP

BETA)

ORBITER BASE PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+AT1! OMS NOZZLE   (RB3E12)

PARAMETRIC VALUES

MACH   2.200   ELEVON   .000
RUDDER   .000   SPDBRK   .000

X/LAM   ALPHAG
.200   -7.980

SYMBOL   P-I
O   135.000
□   180.000
◇   225.000

OMS NOZZLE PRESSURES

PRESSURE COEFFICIENT, CP

BETAO

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ARC97-716 IA14 O1+T12+S12N25+AT11 OMS NOZZLE   (RB3E12)

OMS NOZZLE PRESSURES

PRESSURE COEFFICIENT, CP

BETAQ

ARC97-716 IA14 O1+T12+S12N25+AT11 OMS NOZZLE   (RB3E12)

PARAMETRIC VALUES
MACH   2.200   ELEVON   .000
RUDDER   .000   SPDBRK

X/LM   ALPHA
.200   -4.030

SYMBOL   PHI
○   135.000
□   180.000
◇   225.000

BETAO

OMS NOZZLE PRESSURES

PRESSURE COEFFICIENT, CP

PAGE   251

ARC97-716 IA14 O1+T12+S12N25+AT11 OMS NOZZLE   (RB3E12)

PARAMETRIC VALUES

MACH	2.200	ELEVON	.000
RUDDER	.000	SPDBRK	.000

SYMBOL	PHI	X/LNH	ALPHAG
O	180.000	.400	-4.000

OMS NOZZLE PRESSURES

PRESSURE COEFFICIENT, CP

BETAO

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ARC97-716 IA14 01+T12+S12N25+AT11 OMS NOZZLE   CRB3E12J

PARAMETRIC VALUES

	MACH	2.200	ELEVON .000
	RUDDER	.000	SPDBRK

X/LM ALPHA8
.200   -.200

SYMBOL	PHI
○	135.000
□	180.000
◇	225.000

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OMS NOZZLE PRESSURES

PRESSURE COEFFICIENT, CP

BETA0

ARC97-716 IA14 01.+T12+S12N25+AT11 OMS NOZZLE   (RB3E12)

OMS NOZZLE PRESSURES

PRESSURE COEFFICIENT, CP

BETAO

ARC97-716 IA14 O1+T!2+S12N25+AT11 OMS NOZZLE   (RB3E12)

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OMS NOZZLE PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 OMS NOZZLE   (RB3E12)

OMS NOZZLE PRESSURES

PRESSURE COEFFICIENT, CP

BETAO

ARC97-716 IA14 O1+T12+S12N25   OMS NOZZLE   (RB3E13)

OMS NOZZLE PRESSURES

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ARC97-716 IA14 O1+TI2+S12N25   OMS NOZZLE   (RB3E13)

OMS NOZZLE PRESSURES

PRESSURE COEFFICIENT, CP

BETAO

PARAMETRIC VALUES
MACH   1.550   ELEVON   .000
RUDDER   .000   SPDBRK   .000
.000
.000

SYMBOL   PHI   X/LH   ALPHAS
O   180.000 .400   -7.930

ARC97-716 IA14 01+T12+S12N25   OMS NOZZLE   (RB3E13)

PARAMETRIC VALUES

SYMBOL	PHI	X/LN	ALPHA0		MACH	1.550	ELEVON	.000
○	135.000	.200	-4.020		RUDDER	.000	SPDBRK	.000
□	180.000							
◇	225.000							

PRESSURE COEFFICIENT, CP

BETA0

OMS NOZZLE PRESSURES

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ARC97-716 IA14 OI+T12+S12N25   OMS NOZZLE   (RB3E13)

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OMS NOZZLE PRESSURES

ARC97-716 IA14 O1+T12+S12N25   OMS NOZZLE   (RB3E13)

OMS NOZZLE PRESSURES

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ARC97-716 IA14 O1+T12+S12N25   OMS NOZZLE   (RB3E13)

OMS NOZZLE PRESSURES

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OMS NOZZLE PRESSURES

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ARC97-716 IA14 01+T12+S12N25 OMS NOZZLE (RB3E13)

OMS NOZZLE PRESSURES

PRESSURE COEFFICIENT, CP

BETA0

PARAMETRIC VALUES

ARC97-716 IA14 O1+T12+S12N25+AT11 SRM NOZZLE (RB3X12)

SRM BOOSTER BASE PRESSURES

ARC97-716 IA14 O1+T12+S12N25+A711 SRM NOZZLE   (RB3X12)

SRM BOOSTER BASE PRESSURES

ARC97-716 IA14 O1+T12+S:2N25+AT11 SRM NOZZLE   (RB3X12)

SYMBOL   PHI   X/LB   ALPHAT
  O   .000   .050   -8.400
  □   45.000
  ◇   90.000
  △   135.000

CP

BETAT

SRM BOOSTER BASE PRESSURES

SRM BOOSTER BASE PRESSURES

ARC97-716 IA14 O!+T!2+S!2N25+AT!! SRM NOZZLE [RB3X12]

SRM BOOSTER BASE PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 SRM NOZZLE   (RB3X12)

SRM BOOSTER BASE PRESSURES

ARG97-716 IA14 O1+T12+S12N25+AT11 SRM NOZZLE   CRB3X12)

SRM BOOSTER BASE PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 SRM NOZZLE   (RB3X12)

SRM BOOSTER BASE PRESSURES

ARC97-716 !A14 O1+T!2+S!2N25+AT!! SRM NOZZLE   (RB3X12)

SRM BOOSTER BASE PRESSURES

ARC97-716 IA14 01+T12+S12N25+AT11 SRM NOZZLE   (RB3X12)

SRM BOOSTER BASE PRESSURES

PAGE   274

ARC97-716 [A14 O1+T12+S12N25+AT11 SRM NOZZLE   (RB3×(12)

SYMBOL   PHI   X/LS   ALPHAT
  ○   .000   .552   -.310
  □   45.000
  ◇   90.000
  ◁   135.000

PARAMETRIC VALUES
MACH   2.200   ELEVON   .000
RUDDER   .000   SPDBRK   .000

SRM BOOSTER BASE PRESSURES

CP

BETAT

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ARC97-716 IA14 B1+T12+S12N25+AT11 SRM NOZZLE   (RB3X12)

SRM BOOSTER BASE PRESSURES

SRM NOZZLE   (RB3X14)

ARC97-716 IA14 01+T12+S12N25

PARAMETRIC VALUES

MACH	2.200	ELEVON	.000
RUDDER	.000	SPDBRK	.000

SYMBOL	PHI	X/LB	ALPHAT
○	.000	.948	-8.400
□	45.000	.978	
◇	90.000		
△	135.000		

SRM BOOSTER BASE PRESSURES

SRM NOZZLE   (RB3X14)

ARC97-716 IA14 O1+T12+S12N25

SRM BOOSTER BASE PRESSURES

ARC97-716 IA14 O1+T12+S12N25   SRM NOZZLE   (RB3X14)

SYMBOL	PHI	X/LB	ALPHAT
O	.000	.500	-8.400
□	45.000		
◇	90.000		
△	135.000		

PARAMETRIC VALUES

MACH	2.200	ELEVON	.000
RUDDER	.000	SPDBRK	.000

CP

BETAT

SRM BOOSTER BASE PRESSURES

SRM NOZZLE   (RB3X14)

SRM BOOSTER BASE PRESSURES

SRM NOZZLE   (RB3X14)

ARC97-716 [A14 O1+T12+S12N25

CP

BETAT

SRM BOOSTER BASE PRESSURES

SRM NOZZLE   (RB3X14)

ARC97-716 1A14 O1+T12+S12N25

SRM BOOSTER BASE PRESSURES

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SRM NOZZLE   (RB3X14)

ARC97-716 IA14 O!+T12+S12N25

SRM BOOSTER BASE PRESSURES

SRM BOOSTER BASE PRESSURES

SRM NOZZLE   (RB3X14)

ARC97-716 IA14 Q1+T12+S12N25

SRM BOOSTER BASE PRESSURES

ARC97-716 1A14 B1+T12+S12N25

SRM NOZZLE   (RB3X14)

SRM BOOSTER BASE PRESSURES

ARC97-716 [A14 01+T12+S12N25   SRM NOZZLE   (RB3X14)

SRM BOOSTER BASE PRESSURES

SRM BOOSTER BASE PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ET + SRM BASE (RB3Y12)

SYMBOL	TAP NO	ALPHAT		MACH	PARAMETRIC VALUES	ELEVON		
○	501.000	-8.400	.000	RUDDER	2.200	.000	SPDBRK	.000
□	502.000					.000		.000
◇	801.000							
△	802.000							
⊿	803.000							

EXTERNAL TANK BASE PRESSURES

PRESSURE COEFFICIENT, CP

BETAT

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ARC97-716 IA14 O1+T12+S12N25+AT11 ET + SRM BASE (RB3Y12)

EXTERNAL TANK BASE PRESSURES

PRESSURE COEFFICIENT, CP

BETAT

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ARC97-716 IA14 O1+T12+S12N25+AT11 ET + SRM BASE (RB3Y12)

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EXTERNAL TANK BASE PRESSURES

ARC97-716 IA14 01+T12+S12N25+A711 ET + SRM BASE (RB3Y12)

PARAMETRIC VALUES

| | | | MACH | 2.200 | ELEVON | .000 |
| | | RUDDER | .000 | SPDBRK | .000 |

SYMBOL TAP NO ALPHAT
O 604.000 .000 -1.500

PRESSURE COEFFICIENT, CP

BETAT

EXTERNAL TANK BASE PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ET + SRM BASE (RB3Y12)

EXTERNAL TANK BASE PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+AT11 ET + SRM BASE (RB3Y12)

EXTERNAL TANK BASE PRESSURES

PRESSURE COEFFICIENT, CP

BETAT

ARC97-716 IA14 O1+T12+S12N25+AT11 ET + SRM BASE (RB3Y12)

EXTERNAL TANK BASE PRESSURES

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ARC97-716 IA14 01+T12+S12N25+AT11 ET + SRM BASE (RB3Y12)

EXTERNAL TANK BASE PRESSURES

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ARC97-716 IA14 O1+T12+S12N25   ET + SRM BASE (RB3Y13)

EXTERNAL TANK BASE PRESSURES

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ARC97-716 IA14 OI+T12+SI2N25   ET + SRM BASE (RB3Y13)

EXTERNAL TANK BASE PRESSURES

PAGE   298

ARC97-716 IA14 O1+T12+S12N25　　ET + SRM BASE (RB3Y13)

PARAMETRIC VALUES

ALPHAT	.000	-4.240
MACH RUDDER	1.500 .000	
ELEVON SPDBRK	.000 .000	

SYMBOL TAP NO

501.000	
502.000	
601.000	
602.000	
603.000	

PRESSURE COEFFICIENT, CP

BETAT

EXTERNAL TANK BASE PRESSURES

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ARC97-716 IA14 01+T12+S12N25   ET + SRM BASE (RB3Y131)

EXTERNAL TANK BASE PRESSURES

PAGE 300

ARC97-716 IA14 D1+T12+S12N25   ET + SRM BASE (RB3Y13)

EXTERNAL TANK BASE PRESSURES

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ARC97-716 IA14 O1+T12+S12N25   ET + SRM BASE (RB3Y13)

EXTERNAL TANK BASE PRESSURES

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ARC97-716 IA14 O1+T12+S12N25   ET + SRM BASE (RB3Y13J)

ALPHAT
.000   8.120

MACH   PARAMETRIC VALUES
RUDDER   1.550   ELEVON
              .000   SPDBRK   .000

SYMBOL   TAP NO
O   501.000
□   502.000
◇   801.000
◁   802.000
△   803.000

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EXTERNAL TANK BASE PRESSURES

PRESSURE COEFFICIENT, CP

BETAT

ARC97-716 IA14 OI+TI2+SI2N25   ET + SRM BASE (RB3Y13)

EXTERNAL TANK BASE PRESSURES

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ARC97-716 IA14 O1+T!2+S12N25+AT11 ORB ATTACH PTS(RB3112)

ORBITER ATTACH POINTS PRESSURES

ARC97-716 IA14 01+T12+S12N25+AT11 ORB ATTACH PTS(RB3112)

ORBITER ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ORB ATTACH PTS(RB3112)

PARAMETRIC VALUES
MACH   2.200   ELEVON   .000
RUDDER   .000   SPDBRK   .000

ALPHAQ   -7.990

SYMBOL   Y/BN   X/LB
  O   -.043   .811
  □   -.021   .819
  ◇   .000   .827
                 .835

CP

BETAQ   BETAQ   BETAQ   BETAQ

2.0
1.8
1.6
1.4
1.2
1.0
.8
.6
.4
.2
0
-.2
-.4
-.6

-10   15   -10   15   -10   15   -10   15

ORBITER ATTACH POINTS PRESSURES

CP

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ARC97-716 IA14 O1+T12+S12N25+AT11 ORB ATTACH PTS(RB3112)

ORBITER ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ORB ATTACH PTS (RB3112)

ORBITER ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ORB ATTACH PTS(RB3112)

ORBITER ATTACH POINTS PRESSURES

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ARC97-716 IA14 0!+T!2+S12N25+A7!1 ORB ATTACH PTS(RB3112)

ORBITER ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ORB ATTACH PTS(RB3112)

ORBITER ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ORB ATTACH PTS(RB31I2)

ORBITER ATTACH POINTS PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+A711 ORB ATTACH PTS(RB31112)

ORBITER ATTACH POINTS PRESSURES

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ARC97-716 :A14 01+T!2+S!2N25+A'!! ORB ATTACH PTS(RB31112)

ORBITER ATTACH POINTS PRESSURES

ORBITER ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25

ORB ATTACH PTS(RB3113)

PARAMETRIC VALUES

1.550	ELEVON
.000	SPDBRK
	.000
	.000

MACH
RUDDER

ALPHA
-7.500

SYMBOL	Y/BN	X/LB
○	-.277	.811
□	-.258	.819
◇	-.234	.827
△	-.213	.835
△	-.192	

CP

CP

CP

CP

BETAO

BETAO

BETAO

BETAO

ORBITER ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25

ORB ATTACH PTS(RB31131)

ORBITER ATTACH POINTS PRESSURES

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ARC97-716 IA14 O1+T12+S12N25

ORB ATTACH PTS (RB3113)

ORBITER ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12+S25

ORB ATTACH PTS(RB3113)

ORBITER ATTACH POINTS PRESSURES

ARC97-716 IA14 01+T12+S12N25

ORB ATTACH PTS(RB3113)

ORBITER ATTACH POINTS PRESSURES

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ARC97-716 IA14 O1+T12+S12N25   ORB ATTACH PTS(RB3113)

ORBITER ATTACH POINTS PRESSURES

ORB ATTACH PTS(RB3113)

ARC97-716 IA14 O1+T12+S12N25

ORBITER ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25   ORB ATTACH PTS(RB3113)

ORBITER ATTACH POINTS PRESSURES

ARC97-716 IA14 OI+T12+S12N25

ORB ATTACH PTS(RB3113)

ORBITER ATTACH POINTS PRESSURES

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ARC97-716 IA14 O1+T12+S12N25

ORB ATTACH PTS(RB3113)

ORBITER ATTACH POINTS PRESSURES

ORBITER ATTACH POINTS PRESSURES

ARC97-716 IA14 01+T12+S12N25

ORB ATTACH PTS(RB3113)

ORBITER ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

PARAMETRIC VALUES

| | | MACH | 2.200 | ELEVON | .000 |
| | | RUDDER | .000 | SPDBRK | .000 |

PHI	X/LT	ALPHAT	-8.400
182.940	.391		
186.360	.397		
189.500	.402		
193.160	.405		
197.000			

SYMBOL ○ □ ◇ △ ◁

CP

BETAT

EXTERNAL TANK ATTACH POINTS PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

PAGE 330

ARC97-716 IA14 O1+T:2+S:2N25+A:11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

PAGE 331

ARC97-716 IA14 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB32I2)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT1 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 !A14 O1+T!2+S!2N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O!+T12+S12N25+AT!: ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB32

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

MACH   RUDDER
PARAMETRIC VALUES
2.200   ELEVON
.000   SPDBRK
.000
.000

EXTERNAL TANK ATTACH POINTS PRESSURES

CP

ARC97-716 IA14 C1+T:2+S:2N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 01+T12+S12N25+A11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+A11! ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA:4 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT1} ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 1A14 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O!+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 01+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-7:6 :A14 01+T:2+S12N25+A::1 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 0!+":2+S12N25+A':: ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 OI+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T.2+S12A25+AV.: ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 01+T12+S12N25+ATT ET ATTACH PTS.(RB3212)

PARAMETRIC VALUES
2.200   ELEVON   .000
.000   SPDBRK   .000

MACH
RUDDER

X/LT   ALPHAT
.807   -.310
.812
.818
.823

- EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T!2+S12N25+AT!! ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 01+T12+S12N25+AT11 E¹ ATTACH PTS.(RB32123

EXTERNAL TANK ATTACH POINTS PRESSURES

C - F

ARC97-716 IA14 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

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ARC97-716 IA14 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

PARAMETRIC VALUES
2.200   ELEVON   .000
.000   SPDBRK   .000

MACH
RUDDER

SYMBOL   PHI   X/LT   ALPHAT
O   251.740 .508   -.310
□   255.280 .943
◇   323.510 .948
△   327.050
⟨   330.590

EXTERNAL TANK ATTACH POINTS PRESSURES

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ARC97-716 IA14 01+T12+S12N25+AT11 ET ATTACH PTS.(RB3212)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25

ET ATTACH PTS.(RB3214)

SYMBOL	RN	x/LT	ALPHAT
	182.840	.391	-8.400
	186.380	.397	
	189.920	.402	
	193.160	.408	
	197.000		

PARAMETRIC VALUES

MACH	2.200	ELEVON	.000
RUDDER	.000	SPDBRK	.000

EXTERNAL TANK ATTACH POINTS PRESSURES

CP

BETAT

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EXTERNAL TANK ATTACH POINTS PRESSURES

ET ATTACH PTS.(RB3214)

ARC97-716 IA14 O1+T12+S12N25

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25

ET ATTACH PTS.(RB3214)

EXTERNAL TANK ATTACH POINTS PRESSURES

CP

BETAT

ET ATTACH PTS.(RB3214)

ARC97-716 IA14 O1+T!2+S12N25

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25   ET ATTACH PTS. (RB3214)

SYMBOL   PHI   X/LT   ALPHAT
  O   334.130   .916   -8.000
  □   337.670   .921
  ◇   341.210   .927
  △   344.750   .932

BETAT

BETAT

BETAT

ΒΕΤΑΤ

CP

EXTERNAL TANK ATTACH POINTS PRESSURES

PAGE 370

ARC97-716 IA14 O1+T12+S12N25   ET ATTACH PTS.(RB3214)

EXTERNAL TANK ATTACH POINTS PRESSURES

PAGE 371

ET ATTACH PTS.(RB3214)

ARC97-716 IA14 O1+T12+S12N25

EXTERNAL TANK ATTACH POINTS PRESSURES

ET ATTACH PTS.(RB3214)

ARC97-716 IA14 O1+T12+S12N25

SYMBOL	PHI	X/LT	ALPHAT
○	228.920	.826	-8.400
□	233.460	.834	
◇	234.040	.839	
△	7 .000		
⟁	237.560		

CP

BETAT

BETAT

BETAT

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25

ET ATTACH PTS.(RB3214)

PARAMETRIC VALUES
MACH   2.200   ELEVON   .000
RUDDER   .000   SPDBRK   .000
                             .000

SYMBOL	PHI	X/LT	ALPHAT
○	240.940	.828	-8.400
□	241.120	.834	
◇	241.080	.808	
△	241.680		
◢	248.200		

CP

BETAT

BETAT

BETAT

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC37-716 IA14 O1+T12+S12N25

ET ATTACH PTS.(RB3214)

EXTERNAL TANK ATTACH POINTS PRESSURES

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ARC97-716 IA14 O1+T12+S12N25

ET ATTACH PTS.(RB3214)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25

EXTERNAL TANK ATTACH POINTS PRESSURES

ET ATTACH PTS.(RB3214)

ARC97-716 IA14 O1+T!2+S12N25

ET ATTACH PTS.(RB3214)

EXTERNAL TANK ATTACH POINTS PRESSURES

ET ATTACH PTS.(RB3214)

ARC97-716 IA14 O1+T12+S12N25

EXTERNAL TANK ATTACH POINTS PRESSURES

ET ATTACH PTS. (RB3214)

ARC97-716 IA14 O1+T12+S12N25

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 01+T12+S12N25   ET ATTACH PTS.(RB3214)

EXTERNAL TANK ATTACH POINTS PRESSURES

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ARC97-716 IA14 01+T12+S12N25   ET ATTACH PTS.(RB3214)

EXTERNAL TANK ATTACH POINTS PRESSURES

ET ATTACH PTS. (RB32(4))

EXTERNAL TANK ATTACH POINTS PRESSURES

ET ATTACH PTS.(RB3214)

ARC97-716 IA14 O1+T12+S12N25

EXTERNAL TANK ATTACH POINTS PRESSURES

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ET ATTACH PTS.(RB3214)

ARC97-716 IA14 O1+T!2+S12N25

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25

ET ATTACH PTS. (RB3214)

EXTERNAL TANK ATTACH POINTS PRESSURES

ET ATTACH PTS. (RB3214)

ARC97-716 IA14 O1+T12+S12N25

PARAMETRIC VALUES

MACH	2.200	ELEVON	.000
RUDDER	.000	SPDBRK	.000

SYMBOL	PHI	X/LT	ALPHAT
○	251.740	.538	-4.300
□	255.280	.943	
◇	323.510	.946	
△	327.050		
△	330.590		

CP

BETAT

EXTERNAL TANK ATTACH POINTS PRESSURES

ARCS7-716 IA14 O1+T12+S12N25

ET ATTACH PTS. (RB3214)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 !A14 O1+T12+S12N25   ET ATTACH PTS. (RB3214)

PARAMETRIC VALUES
MACH   2.200   ELEVON   .000
RUDDER   .000   SPDBRK   .000

SYMBOL   PHI   X/LT   ALPHAT
  O   182.840   .381   -.310
  □   186.380   .397
  ◇   189.920   .402
  △   193.460   .408
  ◁   197.000

EXTERNAL TANK ATTACH POINTS PRESSURES

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ARC97-716 IA14 O1+T12+S12N25

ET ATTACH PTS. (RB3214)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25

ET ATTACH PTS.(RB32I4)

EXTERNAL TANK ATTACH POINTS PRESSURES

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25

ET ATTACH PTS. (RB3214)

ARC97-716 IA14 O1+T12+S12N25   ET ATTACH PTS. (RB3214)

EXTERNAL TANK ATTACH POINTS PRESSURES

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ARC97-716 IA14 O1+T12+S12N25

ET ATTACH PTS. (RB3214)

SYMBOL	PHI	X/LT	ALPHAT
○	304.130	.916	-.310
□	307.670	.921	
◇	341.210	.977	
△	344.750	.902	

PARAMETRIC VALUES

MACH	2.200	ELEVON	.000
RUDDER	.000	SPDBRK	.000

EXTERNAL TANK ATTACH POINTS PRESSURES

ET ATTACH PTS.(RB3214)

AD297-716 !A14 01+T12+S12~25

EXTERNAL TANK ATTACH POINTS PRESSURES

ET ATTACH PTS. (RB3214)

EXTERNAL TANK ATTACH POINTS PRESSURES

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25

ET ATTACH PTS.(RB3214)

ALPHAT   -.310

EXTERNAL TANK ATTACH POINTS PRESSURES

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 O1+T12+S12N25   ET ATTACH PTS.(RB3214)

EXTERNAL TANK ATTACH POINTS PRESSURES

ARC97-716 IA14 01+T12+S12N25+A711 ET BASE RAKE (RB3312)

EXTERNAL TANK BASE RAKE PRESSURES

PRESSURE COEFFICIENT, CP

ARC97-716 IA14 O1+T12+S12N25+AT11 ET BASE RAKE (RB3312)

EXTERNAL TANK BASE RAKE PRESSURES

PRESSURE COEFFICIENT, CP

BETA

PARAMETRIC VALUES
MACH   2.200   ELEVON   .000
RUDDER   .000   SPDBRK   .000

SYMBOL   TAP NO   PHI   ALPHAT
  O   780.000   180.000   -4.300
  □   786.000
  ◇   786.000
  △   787.000

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ARC97-716 IA14 O1+T!2+S!2N25+AT!! ET BASE RAKE (RB3312)

EXTERNAL TANK BASE RAKE PRESSURES

ARC97-716 IA14 O1+T12+S12N25   ET BASE RAKE (RB3314)

PARAMETRIC VALUES

SYMBOL	TAP NO	PHI	ALPHAT		
○	750.000	180.000	-8.400	MACH	2.200
□	755.000			RUDDER	.000
◇	766.000			ELEVON	.000
△	767.000			SPDBRK	.000
				JUIC	.000

PRESSURE COEFFICIENT, CP

BETAT

EXTERNAL TANK BASE RAKE PRESSURES

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ARC97-716 'A14 01+T12+S12N25   ET BASE RAKE   (RB3314)

EXTERNAL TANK BASE RAKE PRESSURES

PAGE   405

ARC97-716 IA14 01+T12+S12N25   ET BASE RAKE   (RB3314)

EXTERNAL TANK BASE RAKE PRESSURES

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APPENDIX

TABULATED FORCE DATA

Tabulations of plotted data are available
on request from Data Management Services.

DATE 28 JAN 75   TABULATED FORCE DATA - 1A14B

AMES 97-716 1A14B Q4+T18+B12+S2+S4+AT11 (TANK+SRM)

REFERENCE DATA

SREF =	2.4910 SQ.FT.	XMRP =	.0000 IN.
LREF =	30.7090 IN.	YMRP =	.0000 IN.
BREF =	30.7090 IN.	ZMRP =	8.9900 IN.
SCALE =	.0300		

PARAMETRIC DATA

| MACH = | 1.550 | ELEVON = | .000 |
| RUDDER = | .000 | SPDBRK = | .000 |

RUN NO.   0/ 0   RNVL = 2.04   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
-8.000	-8.040	-8.2900	-.42840	.05960	.25490	.15920	.12650	.00780	-.02450
-8.000	-4.330	-8.2800	-.39210	.03220	.24600	.12410	.05760	.01760	-.01570
-8.000	-.100	-8.2900	-.36120	.01310	.23400	.13390	.00260	.00370	-.00130
-8.000	3.860	-8.2900	-.35760	.01630	.24420	.13840	-.04260	-.01210	.01530
-8.000	7.890	-8.3100	-.36650	.02560	.23400	.14960	-.10490	-.01030	.02560
GRADIENT	-.00123	.00423	-.00196	-.00025	.00175	-.01224	-.00364	-.00356

RUN NO.   0/ 0   RNVL = 2.07   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
-4.000	-7.960	-4.2400	-.26820	.04450	.25740	.14970	.11930	.00560	-.01620
-4.000	-4.130	-4.2000	-.23380	.02640	.24760	.14380	.04950	.01670	-.00940
-4.000	-.110	-4.2500	-.21690	.01330	.23440	.15190	.00140	.00400	-.00110
-4.000	3.820	-4.2200	-.21580	.01790	.24670	.15750	-.03490	-.01490	.00810
-4.000	7.970	-4.2500	-.21670	.01780	.25560	.16350	-.10400	-.00860	.01530
GRADIENT	-.00080	.00240	-.00108	-.00013	.00172	-.01062	-.00392	-.00220

RUN NO.   0/ 0   RNVL = 2.02   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
.000	-7.970	-.3000	-.15430	.05950	.25980	.16030	.14000	-.01370	-.00790
.000	-4.120	-.2900	-.12850	.04310	.25190	.15960	.06410	.00350	-.00460
.000	-.130	-.2900	-.11740	.05590	.25930	.15770	.01010	-.00260	-.00070
.000	3.880	-.2500	-.12000	.05930	.25010	.17430	-.04670	-.00610	.00380
.000	7.850	-.3000	-.15220	.05950	.25640	.16410	-.12720	-.01040	.00780
GRADIENT	-.00080	.00108	-.00070	-.00017	.00182	-.01365	-.00120	.00105

RUN NO.   0/ 0   RNVL = 2.02   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
4.000	-7.940	3.6500	-.05910	.06410	.25720	.14340	.18530	-.03320	-.00190
4.000	-4.140	3.9200	-.03790	.06940	.25180	.15590	.08310	-.01170	-.00100
4.000	-.130	3.9300	-.02430	.05670	.24180	.15840	.01290	-.00440	-.00010
4.000	3.840	3.9400	-.02570	.06960	.24690	.15970	-.06440	.00550	.00080
4.000	7.960	9.9400	-.03320	.06310	.25640	.17260	-.14860	.02700	.00090
GRADIENT	.00291	.00153	-.00114	-.00037	.00056	-.01873	.00215	.00015

DATE 20 JAN 73   TABULATED FORCE DATA - 1A148

AMES 97-716 1A148 O1+T1E+S1E2N25+AT11 (TANK+SRM)   (RB3111)   (02 JAN 74)

REFERENCE DATA

PARAMETRIC DATA

SREF :	2.6310 SQ.FT.	XMRP :	.0000 IN.		MACH =	1.550	ELEVON =	.000
LREF :	30.7000 IN.	YMRP :	.0000 IN.		RUDDER =	.000	SPDBRK =	.000
BREF :	30.7000 IN.	ZMRP :	9.9800 IN.					
SCALE :	.0300							

RUN NO.   0/ 0   RN/L =   2.02   GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
-7.990	0.13000	.08210	.08230	.23080	.15180	.18400	-.04100	.00580
-4.820	0.15000	.08360	.08620	.24610	.15570	.09960	-.01530	.00330
-.170	0.12000	.09660	.05190	.23630	.15570	.01890	-.00460	.00040
-.080	0.14000	.08980	.05000	.24260	.15660	-.07990	.05920	-.00310
3.960	0.14000	.09240	.03320	.25150	.16330	-.17600	.03950	-.00610
7.930	0.16000	.09240	.03320	.25150	.16330	-.17600	.03950	-.00610
GRADIENT	.00246	.00260	-.00076	-.00043	.00011	-.02206	.00321	-.00079

AMES 97-716 1A148 O1+T1E+S1E2N25+AT11 (TANK+SRM)   (RB3112)   (02 JAN 74)

REFERENCE DATA

PARAMETRIC DATA

SREF :	2.6310 SQ.FT.	XMRP :	.0000 IN.		MACH =	2.201	ELEVON =	.000
LREF :	30.7000 IN.	YMRP :	.0000 IN.		RUDDER =	.000	SPDBRK =	.000
BREF :	30.7000 IN.	ZMRP :	9.9800 IN.					
SCALE :	.0300							

RUN NO.   0/ 0   RN/L =   2.74   GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
-8.100	-0.40000	-.47040	.10510	.21420	.14080	.17610	-.00960	-.01940
-4.110	-0.30000	-.42520	.07670	.21460	.14230	.09040	-.00470	-.01050
-.080	-0.39000	-.40010	.06180	.21340	.14250	.00330	.00140	.00010
3.990	-0.39000	-.40160	.06680	.21490	.14510	-.07390	.00500	.01010
8.040	-0.41000	-.41730	.03470	.21670	.15410	-.15940	.01060	.01680
GRADIENT	-.00124	.00520	-.00106	.00001	.00034	-.02029	.00180	.01634

RUN NO.   0/ 0   RN/L =   2.77   GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
-8.070	-4.30000	-.23910	.06930	.21960	.14530	.16660	-.00970	-.01510
-4.050	-4.29000	-.24990	.04840	.21580	.14180	.07790	-.00220	-.00940
-.030	-4.30000	-.25030	.03580	.21410	.14110	-.00030	-.00220	-.00030
3.960	-4.30000	-.25900	.04300	.21960	.14760	-.06570	.00340	.00760
7.990	-4.30000	-.24840	.03580	.22010	.13940	-.15950	.01450	.01430
GRADIENT	-.00126	.00136	-.00043	.00013	.00073	-.01609	.00071	.00024

AMES 97-716 1A148 CL+T1S+S82N2S+AT1 (TANK+SRM)   (C51181) (08 JAN 74)

REFERENCE DATA

SREF = 2.6310 SQ.FT.	XMRP = .0000 IN.	
LREF = 30.7050 IN.	YMRP = .0000 IN.	
BREF = 30.7050 IN.	ZMRP = 0.0000 IN.	
SCALE = .030		

PARAMETRIC DATA

MACH = 2.501	ELEVON = .000
RUDDER = .000	SPDBRK = .000

RUN NO. 0/ 0   RN/L = 2.75   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CN	CLM	CA	CAF	CY	CYN	CBL
.000	-8.050	-.15490	.06480	.21650	.14290	.17960	-.02740	-.00970
.000	-4.060	-.12530	.04560	.21650	.14170	.08620	-.01390	-.00450
.000	-.100	-.10370	.03240	.21630	.14410	.00500	-.00090	-.00040
.000	3.970	-.11240	.03900	.21940	.15370	-.07410	.01130	.00420
.000	8.020	-.12530	.04960	.22140	.16810	-.17320	.02830	.00770
GRADIENT		.00134	-.00081	.00036	.00130	-.02021	.00310	.00108

RUN NO. 0/ 0   RN/L = 2.77   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CN	CLM	CA	CAF	CY	CYN	CBL
4.000	-8.150	-.02810	.06090	.21760	.14690	.19970	-.03670	-.00230
4.000	-4.080	-.00310	.04620	.21720	.14930	.09520	-.01790	-.00180
4.000	-.040	.00680	.03600	.21640	.14870	.00600	-.00090	-.00040
4.000	3.950	.00720	.04020	.21730	.15110	-.08430	.01700	.00050
4.000	7.970	-.00610	.04950	.22110	.16240	-.18650	.03650	.00180
GRADIENT		.00139	-.00075	.00004	.00035	-.02235	.00435	-.00064

RUN NO. 0/ 0   RN/L = 2.77   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CN	CLM	CA	CAF	CY	CYN	CBL
8.000	-8.180	.14080	.03240	.21920	.15130	.20730	-.04190	-.00280
8.000	-4.130	.14210	.03080	.21590	.15170	.10140	-.01660	-.00220
8.000	-.040	.15110	.02450	.21670	.15140	.00430	-.00050	-.00020
8.000	4.050	.15060	.02870	.21710	.15400	-.09340	.01820	-.00160
8.000	8.110	.15170	.02880	.21860	.16350	-.19970	.04230	-.00330
GRADIENT		.00099	-.00085	.00015	.00008	-.02357	.00466	-.00049

(RB3115)   (02 JAN 74)

AMES 07-716 1A148 OL+T18+S10S   (TANK+SRM)

REFERENCE DATA

SREF :	2.6210 SQ.FT.	XREF :	.0000 IN.
LREF :	36.7000 IN.	YREF :	.0000 IN.
BREF :	36.7000 IN.	ZREF :	3.0000 IN.
SCALE :	.030		

PARAMETRIC DATA

MACH :	1.550	ELEVON :	.000
		SPDBRK :	.000
RUDDER :	.000		

RUN NO. 0/ 0   RNVL = 2.01   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CN	CLM	CA	CAF	CY	CYN	CBL
-.000	-0.100	-.37830	.02310	.25960	.14780	.13290	.00040	-.02400
-.000	-3.730	-.34560	.00500	.24470	.15480	.04960	.01730	-.01390
-.000	.170	-.31680	-.01370	.23630	.15900	.00190	.00260	-.00740
-.000	4.300	-.30070	-.01860	.24220	.15860	-.04680	-.01450	-.01400
-.000	6.850	-.31770	-.00480	.24480	.16520	-.11660	-.00530	-.02370
-.000		-.00438	.00188	-.00029	.00030	-.01200	-.00396	-.00344
GRADIENT	-.00248							

RUN NO. 0/ 0   RNVL = 2.01   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CN	CLM	CA	CAF	CY	CYN	CBL
-4.000	-.050	-.22130	.01980	.29070	.15960	.12210	.00490	-.01900
-4.000	-3.990	-.19460	-.00360	.24720	.15950	.04620	.01530	-.00790
-4.000	.350	-.17230	-.01560	.23560	.15540	.00740	-.00410	-.00040
-4.000	4.190	-.17170	-.01600	.24330	.16000	-.03780	-.01770	.00370
-4.000	6.100	-.17760	-.01070	.23480	.17160	-.10770	-.00760	.01560
-4.000		.00292	-.00134	-.00051	.00013	-.01065	-.00418	.00211
GRADIENT	-.00002							

RUN NO. 0/ 0   RNVL = 2.01   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CN	CLM	CA	CAF	CY	CYN	CBL
.000	-.050	-.15960	.02300	.26070	.14930	.14370	-.01640	-.00910
.000	-4.000	-.06410	.01410	.25300	.15910	.06870	.00310	-.00370
.000	-.150	-.06730	.00270	.24070	.15960	.00720	-.00940	-.00240
.000	4.190	-.06990	.00810	.24750	.16250	-.05000	-.00840	.00330
.000	6.600	-.07080	.00190	.25730	.17170	-.13040	.01010	.00780
.000		.00181	-.00094	-.00058	.00054	-.01375	-.00141	.00093
GRADIENT	-.00160							

RUN NO. 0/ 0   RNVL = 2.01   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CN	CLM	CA	CAF	CY	CYN	CBL
4.000	-.150	-.00970	.04730	.25900	.13870	.17060	-.03660	-.00040
4.000	-4.100	.00860	.03500	.25090	.15660	.08660	-.01330	-.00020
4.000	-.170	.02310	.02590	.24030	.15330	.01630	-.03600	.00030
4.000	4.130	.01940	.02740	.24620	.16200	-.06710	.00370	-.00040
4.000	6.500	.01780	.02480	.25510	.17060	-.13430	.02770	-.00020
4.000		.00183	-.00096	-.00054	.00064	-.01071	.00207	-.00003
GRADIENT	.00243							

DATE 25 JAN 75   TABULATED FORCE DATA - 1A14B

AMES 97-716 1A14B Q1+T1E+S12NE3   (TAMK+SRM)   (RS3113)   (02 JAN 74)

REFERENCE DATA.   PARAMETRIC DATA

SREF	:	2.4210 SQ.FT.	XMRP	:	.0000 IN.		MACH	:	1.550	ELEVON	:	.000
LREF	:	36.7080 IN.	YMRP	:	.0000 IN.		RUDDER	:	.000	SPDBRK	:	.000
BREF	:	36.7080 IN.	ZMRP	:	0.0000 IN.							
SCALE	:	.0300										

RUN NO.   0/ 0   RN/L = 8.08   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CN	ALPHA	CLM	CA	CAF	CY	CYN	CBL
0.000	-6.840	.12710	0.15000	.03070	.2490	.1445D	.1947D	-.04780	.00710
0.000	-4.150	.13030	0.11000	.03030	.2467D	.1346D	.0971D	-.01530	.00490
0.000	-.810	.13700	0.11000	.02230	.2360D	.1537D	.0148D	-.00560	.00060
0.000	4.160	.12960	0.14000	.02760	.24130	.1965D	-.08650	.00970	-.00400
0.000	8.305	.13260	0.15000	.02350	.25000	.1876D	-.18400	.04250	-.00710
0.000		-.00011	.00307	-.00030	-.00082	.00021	-.02211	.02302	-.00099
GRADIENT									

AMES 97-716 1A14B Q1+T1E+S12NE3   (TAMK+SRM)   (RS3114)   (02 JAN 74)

REFERENCE DATA.   PARAMETRIC DATA

SREF	:	2.4210 SQ.FT.	XMRP	:	.0000 IN.		MACH	:	2.201	ELEVON	:	.000
LREF	:	36.7080 IN.	YMRP	:	.0000 IN.		RUDDER	:	.000	SPDBRK	:	.000
BREF	:	36.7080 IN.	ZMRP	:	0.0000 IN.							
SCALE	:	.0300										

RUN NO.   0/ 0   RN/L = 2.77   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CN	ALPHA	CLM	CA	CAF	CY	CYN	CBL
-0.000	-7.050	-.44410	-6.40000	.04780	.2148D	.14380	.17280	-.01110	-.01960
-0.000	-3.660	-.40670	-6.30000	.06190	.2125D	.14230	.08660	-.00310	-.01030
-0.000	.150	-.36110	-6.37000	.04490	.2107D	.14410	.00160	.00070	.00010
-0.000	4.130	-.35070	-6.35000	.05130	.21620	.14470	-.07930	.00790	.01090
-0.000	8.560	-.39970	-6.45000	.07000	.21860	.15950	-.16390	.01180	.01950
-0.000		-.00324	-.00248	-.00133	.00044	.00024	-.02063	.00154	.00263
GRADIENT									

RUN NO.   0/ 0   RN/L = 8.76   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CN	ALPHA	CLM	CA	CAF	CY	CYN	CBL
-4.000	-7.500	-.26390	-4.30000	.05110	.21710	.15010	.16360	-.00860	-.01530
-4.000	-3.660	-.22790	-4.29000	.02928	.21900	.14460	.07340	-.00130	-.00810
-4.000	.040	-.20750	-4.29000	.01660	.21890	.14310	.00080	.00060	.00010
-4.000	4.050	-.21000	-4.29000	.02900	.21630	.14940	-.07090	.00400	.00860
-4.000	8.140	-.22480	-4.29000	.03710	.21960	.16010	-.16320	.01430	.01530
-4.000		.00225	.00090	-.00078	.00017	.00058	-.01820	.00067	.00213
GRADIENT									

DATE 29 JAN 73   TABULATED FORCE DATA - 1A148

AMES 97-716 1A148 O1+T1E+S12NES   (TANK+SRM)   (RES114)   (02 JAN 74)

REFERENCE DATA   PARAMETRIC DATA

SREF = 2.6910 SQ.FT.   XMRP =   .0000 IN.
LREF = 30.7090 IN.   YMRP =   .0000 IN.   MACH   = 2.201   ELEVON =   .000
BREF = 30.7090 IN.   ZMRP = 0.9600 IN.   RUDDER =   .000   SPDBRK =   .000
SCALE = .0500

RUN NO.   0/ 0   RNVL =   2.76   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
.000	-7.690	-.31000	-.18710	.04330	.21780	.14910	.18910	-.02090	-.00490
.000	-3.690	-.30000	-.09180	.02180	.21660	.14840	.08040	-.01110	-.00450
.000	.070	-.30000	-.07780	.01390	.21590	.14800	-.00110	-.00070	.00010
.000	4.140	-.30000	-.08050	.01740	.21660	.15060	-.08050	.01220	.00480
.000	8.190	-.30000	-.09440	.02970	.22130	.16680	-.17880	.02060	.00064
.000	GRADIENT	-.00000	.00138	-.00047	.00000	.00065	-.02003	.00290	.00116

RUN NO.   0/ 0   RNVL =   2.76   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
4.000	-0.080	3.96000	.01180	.03590	.21900	.15440	.18300	-.02950	-.00250
4.000	-4.030	3.96000	.02790	.02230	.21660	.15410	.08960	-.01640	-.00130
4.000	.080	3.96000	.03530	.01840	.21840	.14960	.00210	-.00190	-.00020
4.000	4.090	3.96000	.03500	.01770	.21550	.15620	-.08670	.01630	.00110
4.000	8.180	4.00000	.02990	.02500	.22200	.16690	-.19400	.03710	.00200
4.000	GRADIENT	.00248	.00008	-.00057	-.00014	.00026	-.02207	.00405	.00030

RUN NO.   0/ 0   RNVL =   2.76   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
8.000	-0.140	8.29000	.19010	.00160	.20950	.15440	.19710	-.03480	.00390
8.000	-4.050	8.25000	.17290	.00960	.21420	.15610	.09390	-.01580	.00250
8.000	0.10	8.27000	.16990	.01170	.21250	.16130	-.00090	-.00010	.00020
8.000	4.110	8.28000	.17300	.00960	.21390	.15980	-.09720	.01620	-.00210
8.000	8.190	8.31000	.17440	.01020	.21640	.16760	-.20400	.04080	-.00370
8.000	GRADIENT	.00386	.00001	.00000	-.00004	.00043	-.02341	.00417	-.00056

DATE 20 JAN 75   TABULATED FORCE DATA - IA14B

AMES 07-716 IA14B OL+T1S+S1BMES+AT11 (ORBITER)   (RB3Q11) (02 JAN 74)

REFERENCE DATA   PARAMETRIC DATA

SREF : 2.4810 SQ.FT.   XMRP :   .0000 IN.   MACH :   1.950   ELEVON :   .000
LREF : 38.7086 IN.   YMRP :   .0000 IN.   RUDDER :   .000   SPDBRK :   .000
BREF : 38.7086 IN.   ZMRP :   9.9900 IN.
SCALE :   .0300

RUN NO.   0 / 0   RN/L =   2.04   GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
ALPHA								
-8.000	-7.95000	-.16660	.17094	.15670	.11790	.17990	-.11920	.06293
-8.000	-4.98000	-.18820	.18078	.15170	.11670	.10170	-.06960	.03488
-8.000	-7.96000	-.20930	.19543	.15590	.11860	.00740	-.00390	.00851
-8.000	-7.97000	-.20340	.19057	.14830	.11640	-.09790	.06620	-.03176
-8.000	-7.99000	-.19990	.18991	.15000	.11600	-.17790	.11710	-.06066
-8.000	-7.99000	-.00215	.00123	-.00044	-.00003	-.02454	.01624	-.00818
GRADIENT	-.00247							

RUN NO.   0 / 0   RN/L =   2.07   GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
-7.950	-4.03000	-.03340	.06706	.14710	.10990	.17090	-.11390	.06091
-4.110	-4.02000	-.05690	.08139	.14410	.11050	.06760	-.05440	.03001
-.140	-4.03000	-.07951	.09303	.14590	.11020	.00680	-.00490	.00267
-.140	-4.03000	-.07790	.09143	.13960	.10900	-.07980	.05800	-.02809
3.780	-4.04000	-.06600	.08545	.14240	.10900	-.15510	.10140	-.05443
7.780	-.00187	-.00242	.00128	-.00057	-.00019	-.02127	.01552	-.00713
GRADIENT								

RUN NO.   0 / 0   RN/L =   2.02   GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
-7.920	-.80000	.11310	-.04378	.14190	.10950	.15290	-.10180	.05836
-4.105	-.80000	.08390	-.02650	.13950	.10760	.07380	-.04390	.02793
-.170	-.81000	.06960	-.01984	.13700	.10780	.01000	-.00590	.00348
3.610	-.81000	.07210	-.02107	.13650	.10670	-.05510	.03390	-.02118
7.740	-.81000	.07600	-.02164	.14010	.10970	-.13030	.06430	-.05053
GRADIENT	.00165	-.00202	.00066	-.00038	-.00031	-.01630	.00960	-.00960

RUN NO.   0 / 0   RN/L =   2.02   GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
-7.680	3.94000	.27440	-.16920	.13600	.10330	.14590	-.09760	.05965
-4.150	3.95000	.23750	-.13930	.13840	.10690	.06600	-.03780	.02793
-.160	3.92000	.21560	-.12787	.13070	.10470	.01820	-.01060	.00810
3.770	3.95000	.22140	-.13062	.13050	.10390	-.03750	.02080	-.01748
7.740	3.94000	.23870	-.13508	.13610	.10820	-.11060	.07340	-.04344
GRADIENT	.00189	-.00202	.00108	-.00073	-.00033	-.01310	.00734	-.00570

DATE 09 JAN 73   TABULATED FORCE DATA - 1A148

AMES 97-716 1A148 OB+TI8+SI8NE5+AT11 (ORBITER)   (RB3Q11)   (02 JAN 74)

REFERENCE DATA   PARAMETRIC DATA

SREF :	2.4810 SQ.FT.	XMRP :	.0000 IN.		MACH =	1.950	ELEVON =	.000
LREF :	39.7080 IN.	YMRP :	.0000 IN.		RUDDER =	.000	SPDBRK =	.000
BREF :	39.7080 IN.	ZMRP :	0.9900 IN.					
SCALE =	.0300							

RUN NO.   0/ 0   RVAL =   2.02   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
.000	-7.630	8.0400	.35980	-.22250	.15980	.09570	.11010	-.07720	.04788
.000	-4.180	8.05000	.33650	-.20953	.15890	.10110	.03438	-.02800	.02271
.000	-.190	8.05000	.31910	-.19998	.15970	.10090	.01660	-.00990	.00558
.000	3.645	8.05000	.38140	-.20093	.12690	.09910	-.02490	.01110	-.01313
.000	7.600	8.06000	.32400	-.20184	.12690	.09690	-.08340	.05470	-.03972
.000	GRADIENT	.00374	-.00105	.00108	-.00082	-.00025	-.00986	.00499	-.00448

AMES 97-716 1A149 OB+TI8+SI8NE5+AT11 (ORBITER)   (RB3Q12)   (02 JAN 74)

REFERENCE DATA   PARAMETRIC DATA

SREF :	2.4810 SQ.FT.	XMRP :	.0000 IN.		MACH =	2.201	ELEVON =	.000
LREF :	39.7080 IN.	YMRP :	.0000 IN.		RUDDER =	.000	SPDBRK =	.000
BREF :	39.7080 IN.	ZMRP :	0.9900 IN.					
SCALE =	.0300							

RUN NO.   0/ 0   RVAL =   2.74   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
-.000	-7.960	-7.96000	-.06130	.10075	.14950	.12240	.19950	-.12560	.06308
-.000	-4.070	-7.97000	-.10990	.12191	.14980	.11950	.09160	-.05810	.03024
-.000	-.050	-7.96000	-.12980	.13991	.14300	.12030	.00360	-.00140	.00113
-.000	3.900	-8.00000	-.15050	.12758	.14670	.12220	-.09180	.06110	-.02959
-.000	7.960	-8.03000	-.10990	.11156	.14800	.12150	-.19100	.12550	-.06159
-.000	GRADIENT	-.00576	-.02134	.00073	.00036	.00034	-.02301	.01495	-.00751

RUN NO.   0/ 0   RVAL =   2.77   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
-.000	-7.960	-4.03000	-.00380	.03948	.13880	.10830	.16820	-.11710	.05948
-.000	-3.900	-4.03000	-.04340	.04982	.13970	.11010	.09610	-.06290	.03180
-.000	-.080	-4.04001	-.05980	.07757	.13800	.10790	.00580	-.00290	.00154
-.000	3.830	-4.05000	-.04760	.06497	.13910	.10940	-.08560	.05730	-.02799
-.000	7.830	-4.07000	-.03950	.03461	.13370	.10740	-.17630	.11550	-.05790
-.000	GRADIENT	-.00856	-.00034	-.00004	-.00008	-.00008	-.02526	.01534	-.00763

AMES 87-718 1A14B CA+T18+B12M25+AT11 (ORBITER)

(MB3Q12)   (02 JAN 74)

PARAMETRIC DATA

REFERENCE DATA

SREF =	2.4210 SQ.FT.	XMRP =	.0000 IN.
LREF =	38.7000 IN.	YMRP =	.0000 IN.
BREF =	38.7000 IN.	ZMRP =	9.9900 IN.
SCALE =	.0300		

MACH =	B.TL1 = .000 ELEVON = .000
RUDDER =	SPDBRK = .000

RUN NO.   0/ 0   RNL = 8.75   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
.000	-7.940	-.80000	.08340	-.03048	.12330	.09780	.17080	-.11040	.05383
.000	-4.030	-.80000	.04830	-.00304	.12770	.10080	.09830	-.06060	.02937
.000	-.130	-.81000	.02380	.01410	.12460	.09840	.00790	-.00440	.00204
.000	3.680	-.81000	.03430	.00474	.12530	.09960	-.07770	-.05240	-.02483
.000	7.860	-.82000	.04940	-.01194	.12230	.09610	-.16130	-.10550	-.05213
GRADIENT		-.00128	-.00175	.00097	-.00030	-.00007	-.02152	.01431	-.00065

RUN NO.   0/ 0   RNL = 8.77   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
4.000	-8.020	3.95000	.16340	-.10746	.11370	.08630	.15590	-.09930	.05082
4.000	-4.040	3.95000	.15140	-.08561	.11970	.09410	.07900	-.05140	.02909
4.000	-.070	3.93000	.12620	-.06668	.11400	.09068	.00520	-.00260	.00104
4.000	3.680	3.93000	.13650	-.07705	.11720	.09260	-.06840	-.04570	-.02205
4.000	7.680	3.94000	.15260	-.09072	.11150	.08600	-.14660	-.09600	-.04823
GRADIENT		.00126	-.00164	.00084	-.00032	-.00019	-.01866	.01229	-.00597

RUN NO.   0/ 0   RNL = 8.77   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
8.000	-8.070	8.06000	.26640	-.17280	.10810	.08230	.13720	-.08840	.04621
8.000	-4.080	8.06000	.23530	-.14826	.11330	.08620	.06940	-.04460	.02431
8.000	-.070	8.06000	.22270	-.14062	.11190	.08770	.00440	-.00230	.00104
8.000	3.680	8.09000	.22560	-.14451	.11040	.08650	-.05970	-.03970	-.02141
8.000	7.940	8.11000	.23740	-.15558	.10510	.07920	-.12860	-.08430	-.04679
GRADIENT		.00374	.00118	.00059	-.00036	-.00021	-.01610	.01054	-.00570

AMES 97-710 1A14B OL+TIE+SERIES   (ORBITER)   (RESOL3)   (02 JAN 74)

REFERENCE DATA

SREF =	2.4810 SQ.FT.	XMRP =	.0000 IN.
LREF =	36.7000 IN.	YMRP =	.0000 IN.
BREF =	36.7000 IN.	ZMRP =	9.9900 IN.
SCALE =	.0300		

PARAMETRIC DATA

MACH =	1.550	ELEVON =	.000
RUDDER =	.000	SPDBRK =	.000

RUN NO. 0/0   RNVL = 2.01   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
-0.000	-8.030	-7.93000	-.20030	.20167	.14170	.10250	.17290	-.11400	.04802
-0.000	-3.710	-7.93000	-.23100	.21597	.13900	.10260	.09080	-.05880	.03213
-0.000	.150	-7.94000	-.25100	.23116	.14360	.10650	-.00560	-.00350	-.00090
-0.000	4.220	-7.96000	-.24960	.22654	.14182	.10350	-.10400	.06920	-.03364
-0.000	8.150	-7.96000	-.24370	.22563	.14870	.10360	-.18760	.12540	-.05342
GRADIENT		-.00379	-.00235	.00138	.00027	.00011	-.02456	.01614	-.00829

RUN NO. 0/0   RNVL = 2.01   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
-4.000	-7.970	-4.02000	-.08660	.10948	.13470	.09510	.16340	-.10800	.05897
-4.000	-3.670	-4.02000	-.11320	.12148	.13018	.09500	.07600	-.04710	.02931
-4.000	.300	-4.03000	-.13950	.13712	.13260	.09730	-.00760	.00690	-.00146
-4.000	4.150	-4.03000	-.12000	.12521	.13160	.09490	-.08860	.05690	-.02917
-4.000	7.990	-4.02000	-.07710	.10379	.13480	.09510	-.16980	.11290	-.05632
GRADIENT		-.00090	-.00090	.00050	.00022	-.00001	-.02113	.01335	-.00698

RUN NO. 0/0   RNVL = 2.01   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
.000	-8.000	-.19000	.06340	-.00439	.12870	.09020	.15900	-.09940	.05661
.000	-3.990	-.17000	.08700	-.02080	.12630	.09130	.06520	-.03700	.02393
.000	-.190	-.16000	.04730	.00471	.12560	.09320	.00520	-.00250	.00270
.000	4.150	-.20000	.02630	.01471	.12750	.09290	-.06620	.04150	-.02290
.000	8.090	-.21000	.02330	.02037	.12970	.09050	-.14900	.09900	-.05385
GRADIENT		-.00372	-.00790	.00426	.00015	.00019	-.01647	.00969	-.00578

RUN NO. 0/0   RNVL = 2.01   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
4.000	-8.070	3.93000	.21940	-.12138	.12390	.08980	.13130	-.08800	.05404
4.000	-4.080	3.91000	.18360	-.09993	.12310	.08880	.04850	-.02900	.02082
4.000	-.180	3.91000	.16650	-.08999	.12170	.09010	.00480	-.00200	.00214
4.000	4.060	3.96000	.17280	-.09402	.12390	.08980	-.04980	.02730	-.01945
4.000	8.090	3.93000	.17710	-.09594	.12540	.08600	-.12840	.08520	-.05124
GRADIENT		.00185	-.00131	.00070	.00010	.00002	-.01209	.00643	-.00495

AMES 97-716 1A14B O1+T12+S12N25   (ORBITER)   (RB3Q13)   (02 JAN 74)

REFERENCE DATA   PARAMETRIC DATA

SREF = 2.4210 Sq.FT.   XMRP = .0000 IN.   MACH =   1.550   ELEVON = .000
LREF = 38.7090 IN.   YMRP = .0000 IN.   RUDDER = .000   SPDBRK = .000
BREF = 38.7090 IN.   ZMRP = 9.9900 IN.
SCALE = .0300

RUN NO. 0/ 0   RN/L = 2.02   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
.000	-8.170	8.04000	.31610	-.19109	.11940	.08050	.10700	-.07020	.04431
.000	-4.120	8.02000	.29730	-.18010	.12090	.08590	.03560	-.01580	.01580
.000	-.230	8.02000	.28510	-.17490	.11760	.08880	.00630	-.00320	.00233
.000	4.070	8.03000	.28720	-.17473	.12270	.08690	-.03740	.01800	-.01565
.000	4.070	8.05000	.28540	-.17183	.12270	.08160	-.10960	.07230	-.04554
.000	8.180	8.06000	-.00120	.00064	.00024	.00011	-.00894	.00414	-.00388
GRADIENT		.00372							

AMES 97-716 1A14B O1+T12+S12N25   (ORBITER)   (RB3Q14)   (02 JAN 74)

REFERENCE DATA   PARAMETRIC DATA

SREF = 2.4210 Sq.FT.   XMRP = .0000 IN.   MACH =   2.201   ELEVON = .000
LREF = 38.7090 IN.   YMRP = .0000 IN.   RUDDER = .000   SPDBRK = .000
BREF = 38.7090 IN.   ZMRP = 9.9900 IN.
SCALE = .0300

RUN NO. 0/ 0   RN/L = 2.77   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
-8.000	-7.830	-7.97000	-.09930	.11576	.13430	.10910	.18790	-.12110	.05849
-8.000	-3.870	-7.98000	-.12210	.13202	.13530	.10920	.09340	-.06000	.03150
-8.000	.130	-7.98000	-.12930	.13656	.13450	.10910	-.00590	.00520	-.00112
-8.000	4.040	-7.99000	-.12840	.13639	.13890	.11130	-.10320	.06860	-.03303
-8.000	8.100	-8.03000	-.12670	.13137	.13910	.11000	-.20360	.13360	-.05624
-8.000		-.00080	-.00080	.00081	.00039	.00026	-.02485	.01626	-.00816
GRADIENT		-.00380							

RUN NO. 0/ 0   RN/L = 2.78   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	ALPHA	CN	CLM	CA	CAF	CY	CYN	CBL
-4.000	-7.760	-4.03000	-.02510	.05691	.12170	.09660	.16930	-.10840	.05749
-4.000	-3.840	-4.03000	-.06900	.08972	.12640	.09900	.08200	-.05300	.02686
-4.000	.040	-4.04000	-.07920	.09749	.12820	.09990	-.00610	.00630	-.00169
-4.000	3.990	-4.04000	-.07230	.08997	.12620	.09920	-.09570	.06380	-.03160
-4.000	7.960	-4.06000	-.04960	.07019	.12280	.09720	-.18920	.12420	-.06293
-4.000		-.00042	-.00042	.00003	-.00003	.00003	-.02278	.01497	-.00775
GRADIENT		-.00120							

DATE 25 JAN 73   TABULATED FORCE DATA - 1A148

AMES 07-716 1A148 CL+TR+SIEMES   (ORBITER)   OBSQ(4)   (02 JAN 74)

REFERENCE DATA   PARAMETRIC DATA

BREF :   2.4810 SQ.FT.   RWP =   .0000 IN.
LREF : 30.7090 IN.   YWP =   .0000 IN.   MACH   =   2.201   ELEVON =   .000
BREF : 30.7090 IN.   ZWP =   9.9900 IN.   RUDDER =   .000   SFDBRK =   .000
SCALE :   .0300

RUN NO.   0/ 0   RNVL = 2.78   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CN	ALPHA	CLM	CA	CAF	CY	CYN	CBL
.000	-7.010	.07050	-.18000	-.01844	.11260	.08710	.15670	-.10020	.03274
.000	-3.680	.03480	-.18000	.01267	.11730	.08890	.07760	-.05040	.02673
.000	-.040	.01330	-.19000	.02766	.11810	.09050	-.00590	.00490	-.00152
.000	4.050	.01630	-.20000	.02204	.11640	.08970	-.08890	.09980	-.02904
.000	8.040	.05260	-.19000	-.00839	.11240	.08630	-.17370	.11410	-.05713
GRADIENT		-.00232	-.00253	.00117	-.00042	.00010	-.02105	.01393	-.00705

RUN NO.   0/ 0   RNVL = 2.78   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CN	ALPHA	CLM	CA	CAF	CY	CYN	CBL
4.000	-7.010	.15530	3.95000	-.06913	.10100	.07660	.13780	-.08900	.04846
4.000	-3.960	.11080	3.93900	-.05204	.10958	.08260	.06540	-.04270	.02246
4.000	.030	.09900	3.94000	-.04145	.10970	.08320	-.00330	.00330	-.00115
4.000	3.990	.10470	3.94000	-.04970	.10690	.08300	-.07910	.05230	-.02561
4.000	8.030	.13050	3.95000	-.07162	.10220	.07590	-.15670	.10410	-.05216
GRADIENT		-.00077	.00198	.00050	-.00008	.00005	-.01820	.01199	-.00606

RUN NO.   0/ 0   RNVL = 2.78   GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CN	ALPHA	CLM	CA	CAF	CY	CYN	CBL
.000	-8.080	.20700	8.05000	-.12767	.09000	.06950	.11030	-.06990	.04117
.000	-4.000	.20330	8.06000	-.12490	.10270	.07650	.03760	-.03690	.02067
.000	.000	.19100	8.06000	-.11801	.10480	.07660	-.00540	.00410	-.00159
.000	4.010	.19310	8.05000	-.11667	.10240	.07710	-.08740	.04470	-.02349
.000	8.060	.21110	8.11000	-.13546	.09470	.08670	-.13960	.09150	-.04883
GRADIENT		-.00130	.00374	.00075	-.00004	.00007	-.01561	.01019	-.00551